

# U.S. Department of Energy

## Portsmouth Annual Environmental Data for 2005



Mute swans (*Cygnus olor*) visit the X-230K Holding Pond at the Portsmouth Gaseous Diffusion Plant.

**U.S. Department of Energy  
Portsmouth Annual Environmental Data  
for 2005  
Piketon, Ohio**

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managing the  
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Portsmouth Gaseous Diffusion Plant  
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## ACRONYMS

°C	degrees Celsius
Ci	curie
cm	centimeter
DCG	derived concentration guide
DOE	U.S. Department of Energy
DOE PORTS	facilities operated by the DOE (not leased to USEC) at the Portsmouth Gaseous Diffusion Plant
EPA	Environmental Protection Agency
g	gram
GWTF	groundwater treatment facility
kg	kilogram
km	kilometer
L	liter
LPP	LATA/Parallax Portsmouth, LLC
m	meter
m <sup>3</sup>	cubic meter
µg	microgram
mg	milligram
MGD	million gallons per day
mrem	millirem
na	not analyzed
ND	not detected
ng	nanogram
NPDES	National Pollutant Discharge Elimination System
pCi	picocurie
PK	Peter Kiewit
PORTS	Portsmouth Gaseous Diffusion Plant
STL	Severn Trent Laboratories
SU	standard unit
TUa	acute toxicity unit
USEC	United States Enrichment Corporation
VOC	volatile organic compound

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## 1. INTRODUCTION

Environmental monitoring at the Portsmouth Gaseous Diffusion Plant (PORTS) is conducted throughout the year. Monitoring demonstrates that the site is a safe place to work, that plant operations do not adversely affect neighboring communities, and that activities comply with federal and state regulations.

This document is a compilation of the environmental monitoring data for calendar year 2005 and is intended as a tool for analysts in environmental monitoring, environmental restoration, and other related disciplines. The data in this document form the basis for the summary information in the *Portsmouth Annual Environmental Report for 2005* (DOE/PPPO/03-0027&D1).

Radiological monitoring data presented in this Data Report and discussed in the *Annual Environmental Report for 2005* indicate that the maximum dose a member of the public could receive from radionuclides released by PORTS in 2005 or detected by environmental monitoring programs in 2005 is 1.67 millirem (mrem), which is significantly less than the 100 mrem limit set by the Department of Energy (DOE).

Other non-radiological chemicals such as metals and volatile organic compounds are also monitored. Discharges of metals and other chemicals to surface water are controlled by National Pollutant Discharge Elimination System (NPDES) permits. None of the discharge limitations in these permits were exceeded during 2005. The *Annual Environmental Report for 2005* provides more information about non-radiological chemicals released from PORTS or detected by PORTS monitoring programs during 2005.

On June 27, 2005, LATA/Parallax Portsmouth, LLC (LPP) replaced Bechtel Jacobs Company LLC as the DOE PORTS managing contractor for environmental remediation activities. The analytical laboratory for radiological analyses of some environmental samples changed due to the new managing contractor. Under Bechtel Jacobs, the United States Enrichment Corporation (USEC) Laboratory analyzed radiological samples collected in support of environmental monitoring at PORTS. Beginning in the third quarter of 2005, Severn Trent Laboratories of St. Louis, Missouri (STL St. Louis) analyzed radiological samples collected by LPP, including groundwater, ambient air, and NPDES samples.

Upon review of the third quarter radiological data, a significant increase was identified in the number of detections of transuranic radionuclides (americium-241, neptunium-237, plutonium-238, and plutonium-239/240). An investigation was initiated immediately to determine the cause of this increase. Until the cause could be established, further shipment of samples to STL St. Louis for radiological analyses was discontinued. LPP contacted personnel with the DOE Consolidation Audit Program, and the personnel recommended that DOE's Radiological and Environmental Sciences Laboratory prepare performance evaluation samples for submittal to STL St. Louis and the USEC Laboratory. The double-blind performance evaluation samples contained low levels of varying combinations of americium-241, neptunium-237, plutonium-238, plutonium-239, technetium-99, uranium-234, and uranium-238.

The USEC Laboratory passed the performance evaluation by reporting activities for all 14 radionuclides within the required acceptance criteria in the three performance evaluation samples submitted to the laboratory; however, STL St. Louis failed the evaluation. Ten of fourteen results reported by STL St. Louis failed to meet required acceptance criteria. STL St. Louis failed the performance acceptance criteria for all reported radionuclides except technetium-99 (passed on 2 of 2 results) and 50% of the reported plutonium results (passed on 2 of 4 results).

Based on the results of the performance evaluation, data provided by STL St. Louis are considered not reliable and therefore are not reported for samples collected in the third and fourth quarters of 2005 and analyzed for transuranic radionuclides and uranium (total uranium and uranium isotopes). Monitoring programs affected by this issue are DOE NPDES monitoring (Table 2.1), ambient air monitoring (Table 2.7), samples collected in conjunction with the Ohio Environmental Protection Agency (EPA) Biological and Water Quality Study (Tables 2.16 through 2.18), and groundwater monitoring (Chapter 4). Technetium-99 data provided by STL St. Louis are included in the report because no issues were identified with technetium-99 results in the performance evaluation.

## **2. ENVIRONMENTAL MONITORING**

This section provides environmental monitoring data collected by both DOE and USEC at or nearby PORTS.

During 2005, the Ohio EPA conducted sampling of surface water, sediment, and fish in and around PORTS for a Biological and Water Quality Study. To the extent possible, the Ohio EPA and DOE split the samples collected for this project. Data for samples analyzed by DOE subcontractors are presented in Tables 2.16 through 2.18. Data analyzed by the Ohio EPA are reported in the Ohio EPA Biological and Water Quality Study, which is available through the Ohio EPA Division of Surface Water.

As discussed in Chapter 1, some radiological monitoring data collected in 2005 are not reported because of issues with the data. Programs affected by this issue are DOE NPDES monitoring (Table 2.1), ambient air monitoring (Table 2.7), and samples collected in conjunction with the Ohio EPA Biological and Water Quality Study (Tables 2.16 through 2.18).

The following tables are included in this section:

- Table 2.1. Radionuclide concentrations in DOE and USEC NPDES outfall water samples – 2005
- Table 2.2. DOE NPDES permit summary – 2005
- Table 2.3. DOE NPDES discharge and compliance rates – 2005
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- Table 2.18. Fish sampling conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005

**Table 2.1. Radionuclide concentrations in DOE and USEC  
NPDES outfall water samples – 2005**

NPDES outfall <sup>a</sup>	Parameter <sup>b</sup>	Number of samples <sup>c</sup>	Minimum <sup>d</sup>	Maximum <sup>d</sup>	Average <sup>e</sup>	DCG <sup>f</sup>
<i>DOE Outfalls</i>						
012	americium-241	3(3)	0	< 0.01731		30
	neptunium-237	3(3)	0	0		30
	plutonium-238	3(3)	0	< 0.01815		40
	plutonium-239/240	3(3)	0	< 0.00001812		30
	technetium-99	12(12)	0	< 1.38		100,000
	uranium	7(0)	0.4517	1.725	0.975	
	uranium-233/234	7(0)	0.2421	0.6979	0.425	500
	uranium-235	7(7)	0	< 0.04937		600
	uranium-236	7(7)	0	< 0.01614		500
	uranium-238	7(0)	0.15	0.575	0.326	600
013	americium-241	3(3)	< 0.000008194	< 0.02146		30
	neptunium-237	3(3)	0	< 0.000007831		30
	plutonium-238	3(3)	0	< 0.03515		40
	plutonium-239/240	3(3)	0	< 0.00001569		30
	technetium-99	12(12)	0	< 4.98		100,000
	uranium	7(0)	0.6942	1.452	1.151	
	uranium-233/234	7(0)	0.4453	0.811	0.626	500
	uranium-235	7(7)	0	< 0.04125		600
	uranium-236	7(7)	0	< 0.01852		500
	uranium-238	7(0)	0.2319	0.4839	0.385	600
015	americium-241	3(3)	0	< 0.02493		30
	neptunium-237	3(3)	0	< 0.009026		30
	plutonium-238	3(3)	< 0.01799	< 0.0303		40
	plutonium-239/240	3(3)	0	< 0.007576		30
	technetium-99	12(10)	0	3.4		100,000
	uranium	7(0)	0.2268	1.669	1.072	
	uranium-233/234	7(0)	0.3233	2.094	0.939	500
	uranium-235	7(5)	< 0.01107	0.05497		600
	uranium-236	7(7)	0	< 0.03131		500
	uranium-238	7(0)	0.07445	0.5559	0.357	600
608	americium-241	3(3)	0	< 0.000009044		
	neptunium-237	3(3)	0	< 0.01945		
	plutonium-238	3(3)	< 0.008523	< 0.03157		
	plutonium-239/240	3(3)	0	0		
	technetium-99	12(0)	650	1990	1051	
	uranium	7(0)	1.143	2.167	1.499	
	uranium-233/234	7(0)	0.8673	1.553	1.132	
	uranium-235	7(4)	< 0.01999	0.08236		
	uranium-236	7(6)	0	0.03584		
	uranium-238	7(0)	0.3811	0.7262	0.499	
610	americium-241	3(3)	0	< 0.02398		
	neptunium-237	3(3)	0	< 0.00729		
	plutonium-238	3(3)	< 0.02908	< 0.03462		
	plutonium-239/240	3(3)	0	< 0.01578		
	technetium-99	12(8)	0	27		
	uranium	7(2)	< 0.003188	2.298	0.862	
	uranium-233/234	7(1)	< 0.05674	4.227	1.361	
	uranium-235	7(5)	< 0.007492	0.1692		
	uranium-236	7(7)	0	< 0.03575		
	uranium-238	7(2)	< 0.00002826	0.7568		

**Table 2.1. Radionuclide concentrations in DOE and USEC  
NPDES outfall water samples – 2005 (continued)**

NPDES outfall <sup>a</sup>	Parameter <sup>b</sup>	Number of samples <sup>c</sup>	Minimum <sup>d</sup>	Maximum <sup>d</sup>	Average <sup>e</sup>	DCG <sup>f</sup>
611	americium-241	3(3)	< 0.00001226	< 0.01864		
	neptunium-237	3(3)	0	< 0.01338		
	plutonium-238	3(3)	< 0.00000666	< 0.01009		
	plutonium-239/240	3(3)	< 0.00001332	< 0.02014		
	technetium-99	12(1)	< 5.94	1060	492	
	uranium	7(0)	0.4102	7.895	5.105	
	uranium-233/234	7(0)	0.5082	10.05	5.72	
	uranium-235	7(1)	< 0.009952	0.5183	0.266	
	uranium-236	7(4)	< 0.006974	0.1421		
	uranium-238	7(0)	0.1369	2.606	1.691	
<i>USEC Outfalls</i>						
001	americium-241	4(4)	< 0.06	< 0.183		30
	neptunium-237	4(4)	< 0.062	< 0.224		30
	plutonium-238	4(4)	< 0.056	< 0.18		40
	plutonium-239/240	4(4)	< 0.056	< 0.223		30
	technetium-99	52(46)	< 8.9			100,000
002	uranium	52(0)	0.2	5.8	0.83	
	americium-241	4(4)	< 0.064	< 0.209		30
	neptunium-237	4(4)	< 0.056	< 0.32		30
	plutonium-238	4(4)	< 0.062	< 0.226		40
	plutonium-239/240	4(4)	< 0.056	< 0.226		30
003	technetium-99	52(52)	< 9	< 10		100,000
	uranium	52(0)	0.6	1.39	0.87	
	americium-241	4(4)	< 0.083	< 0.242		30
	neptunium-237	4(4)	< 0.067	< 0.34		30
	plutonium-238	4(4)	< 0.154	< 0.24		40
004	plutonium-239/240	4(4)	< 0.073	< 0.19		30
	technetium-99	52(0)	113	270	160	100,000
	uranium	52(0)	3.29	25.1	8.69	
	americium-241	4(4)	< 0.059	< 0.178		30
	neptunium-237	4(4)	< 0.143	< 0.229		30
005	plutonium-238	4(4)	< 0.058	< 0.221		40
	plutonium-239/240	4(4)	< 0.058	< 0.234		30
	technetium-99	51(51)	< 9	< 10		100,000
	uranium	51(0)	0.27	2.19	0.76	
	americium-241	2(2)	< 0.198	< 0.412		30
	neptunium-237	2(2)	< 0.193	< 0.237		30
	plutonium-238	2(2)	< 0.153	< 0.374		40
	plutonium-239/240	2(2)	< 0.153	< 0.207		30
	technetium-99	2(2)	< 9	< 10		100,000
	uranium	2(0)	0.25	0.25	0.25	

**Table 2.1. Radionuclide concentrations in DOE and USEC  
NPDES outfall water samples – 2005 (continued)**

NPDES outfall <sup>a</sup>	Parameter <sup>b</sup>	Number of samples <sup>c</sup>	Minimum <sup>d</sup>	Maximum <sup>d</sup>	Average <sup>e</sup>	DCG <sup>f</sup>
009	americium-241	4(4)	< 0.058	< 0.302		30
	neptunium-237	4(4)	< 0.055	< 0.318		30
	plutonium-238	4(4)	< 0.055	< 0.144		40
	plutonium-239/240	4(3)	< 0.171	< 0.194		30
	technetium-99	52(51)	< 8.9	10		100,000
	uranium	52(0)	0.67	8.41	4.95	
010	americium-241	4(4)	< 0.07	< 0.238		30
	neptunium-237	4(4)	< 0.083	< 0.164		30
	plutonium-238	4(4)	< 0.052	< 0.239		40
	plutonium-239/240	4(4)	< 0.06	< 0.163		30
	technetium-99	52(52)	< 8.9	< 10		100,000
	uranium	52(0)	1.1	5.27	2.75	
011	americium-241	4(4)	< 0.173	< 0.393		30
	neptunium-237	4(4)	< 0.061	< 0.248		30
	plutonium-238	4(4)	< 0.061	< 0.328		40
	plutonium-239/240	4(4)	< 0.057	< 0.219		30
	technetium-99	52(52)	< 8.9	< 10		100,000
	uranium	52(0)	0.5	1.77	0.99	

<sup>a</sup>DOE internal NPDES Outfalls 608, 610, and 611 discharge to USEC NPDES Outfall 003 (X-6619 Sewage Treatment Plant).

<sup>b</sup>Uranium is reported in  $\mu\text{g/L}$ ; all other radionuclides are reported in pCi/L.

<sup>c</sup>Number in parentheses is the number of samples that were below the detection limit.

<sup>d</sup>Minimum and maximum values reported as “0” may actually be negative results. Because of the statistical nature of radiation detection, results for samples that have no radioactivity are often negative values because background radioactivity is subtracted out. These negative value results are reported as “0” in the table for simplicity.

<sup>e</sup>Averages were not calculated for outfalls that had greater than 15% of the results below the detection limit. For outfalls with less than 15% of the results below the detection limit, any result below the detection limit was assigned a value at the detection limit to calculate the average for the parameter.

<sup>f</sup>Derived Concentration Guide (DCG)(pCi/L). DCGs are not provided for DOE internal outfalls (Outfalls 608, 610, and 611) because water from these outfalls flows through another outfall prior to discharge from the site. A DCG is not available for uranium.

**Table 2.2. DOE NPDES permit summary – 2005**

Effluent characteristics		Monitoring requirements		Discharge limitations	
Parameter	Units	Measurement frequency	Sampling type	Concentration	
				Monthly	Daily
<i>Outfall 012 (X-2230M Holding Pond)</i>					
Flow rate	MGD	Daily	24-hour total <sup>a</sup>		
pH	SU	1/2 weeks	Grab		6.5–9.0
Total suspended solids	mg/L	1/2 weeks	Grab	30	45
Oil and grease, total	mg/L	1/2 weeks	Grab	10	20
Chlorine, total residual	mg/L	1/2 weeks <sup>b</sup>	Grab		
Iron, total recoverable	µg/L	1/2 weeks	Grab		
Trichloroethene	µg/L	1/2 weeks	Grab		
PCBs	µg/L	1/quarter	Grab	c	c
<i>Outfall 013 (X-2230N Holding Pond)</i>					
Flow rate	MGD	Daily	24-hour total <sup>a</sup>		
pH	SU	1/2 weeks	Grab		6.5–9.0
Total suspended solids	mg/L	1/2 weeks	Grab	30	45
Oil and grease, total	mg/L	1/2 weeks	Grab	10	20
Chlorine, total residual	mg/L	1/2 weeks <sup>b</sup>	Grab		
PCBs	µg/L	1/quarter	Grab	c	c
<i>Outfall 015 (X-624 Groundwater Treatment Facility)</i>					
Flow rate	MGD	Daily	24-hour total		
Trichloroethene	µg/L	1/2 weeks	Grab	10	10
PCBs	µg/L	1/quarter	Grab	c	c
<i>Outfall 608 (X-622 Groundwater Treatment Facility)</i>					
Flow rate	MGD	Daily	24-hour total		
pH	SU	1/2 weeks	Grab		
Trichloroethene	µg/L	1/2 weeks	Grab		10
1,2-trans-dichloroethene	µg/L	1/2 weeks	Grab	25	66
<i>Outfall 610 (X-623 Groundwater Treatment Facility)</i>					
Flow rate	MGD	Daily	24-hour total		
pH	SU	1/2 weeks	Grab		
Trichloroethene	µg/L	1/2 weeks	Grab	10	10
1,2-trans-dichloroethene	µg/L	1/2 weeks	Grab	25	66
<i>Outfall 611 (X-627 Groundwater Treatment Facility)</i>					
Flow rate	MGD	Daily	24-hour total		
Trichloroethene	µg/L	1/2 weeks	Grab	10	10
<i>Outfall 613 (X-6002 Particulate Separator)</i>					
Flow rate	MGD	Daily	24-hour total <sup>a</sup>		
Chlorine, total residual	mg/L	1/2 weeks	Grab		
Total suspended solids	mg/L	1/2 weeks	Grab		

<sup>a</sup>Estimated.

<sup>b</sup>Summer only.

\*No detectable PCBs.

**Table 2.3. DOE NPDES discharge and compliance rates – 2005**

Parameter	NPDES compliance rate (%)	Number of measurements <sup>a</sup>	Concentration			Units
			Minimum	Maximum	Average <sup>b</sup>	
<i>Outfall 012 (X-2230M Holding Pond)</i>						
Flow rate	<i>c</i>	251	0	8.809	0.3811	MGD
pH	100	26	7.48	8.6	8.09	SU
Total suspended solids	100	26(3)	1.2	21	5.1	mg/L
monthly average <sup>f</sup>	100	12	0.8	9.4	4.5	mg/L
Oil and grease, total	100	26(18)	0.78	< 5		mg/L
monthly average <sup>f</sup>	100	12	0	1.665	0.44	mg/L
Chlorine, total residual	<i>d</i>	12	0.07	0.29	0.16	mg/L
Iron, total recoverable	<i>d</i>	26(0)	170	1100	457	µg/L
Trichloroethene	<i>d</i>	26(22)	0.27	< 1		µg/L
PCBs	<i>e</i>	4(4)	< 1	< 1		µg/L
<i>Outfall 013 (X-2230N Holding Pond)</i>						
Flow rate	<i>c</i>	251	0.003	7.109	0.2805	MGD
pH	100	26	7.85	8.53	8.16	SU
Total suspended solids	100	26(13)	1.2	11		mg/L
monthly average <sup>f</sup>	100	12	0	8.5	1.74	mg/L
Oil and grease, total	100	26(20)	0	< 5		mg/L
monthly average <sup>f</sup>	100	12	0	1.015	0.23	mg/L
Chlorine, total residual	<i>d</i>	12	0.06	0.29	0.14	mg/L
PCBs	<i>e</i>	4(4)	< 1	< 1		µg/L
<i>Outfall 015 (X-624 Groundwater Treatment Facility)</i>						
Flow rate	<i>c</i>	365	0	0.0371	0.0068	MGD
Trichloroethene	100	27(18)	0.2	1.5		µg/L
monthly average <sup>f</sup>	100	12	0	0.75	0.20	µg/L
PCBs	<i>e</i>	4(4)	< 1	< 1		µg/L
<i>Outfall 608 (X-622 Groundwater Treatment Facility)</i>						
Flow rate	<i>c</i>	365	0.0247	0.0544	0.0370	MGD
pH	<i>d</i>	26	7.49	8.95	7.84	SU
Trichloroethene	100	26(0)	0.91	1.9	1.3	µg/L
1,2-trans-dichloroethene	100	26(26)	< 0.5	< 0.5		µg/L
monthly average <sup>f</sup>	100	12	0	0	0	µg/L
<i>Outfall 610 (X-623 Groundwater Treatment Facility)</i>						
Flow rate	<i>c</i>	365	0	0.0361	0.0121	MGD
pH	<i>d</i>	26	6.5	8.06	7.15	SU
Trichloroethene	100	26(13)	0.2	4		µg/L
monthly average <sup>f</sup>	100	12	0	2	0.56	µg/L
1,2-trans-dichloroethene	100	26(26)	< 0.5	< 0.5		µg/L
monthly average <sup>f</sup>	100	12	0	0	0	µg/L

**Table 2.3. DOE NPDES discharge and compliance rates – 2005 (continued)**

Parameter	NPDES compliance rate (%)	Number of measurements <sup>a</sup>	Concentration			Units
			Minimum	Maximum	Average <sup>b</sup>	
<i>Outfall 611 (X-627 Groundwater Treatment Facility)</i>						
Flow rate	<sup>c</sup>	365	0	0.0407	0.0213	MGD
Trichloroethene monthly average <sup>f</sup>	100	26(4)	0.24	5.9	1.1	µg/L
	100	12	0.14	3.7	0.97	µg/L
<i>Outfall 613 (X-6002 Particulate Separator)</i>						
Flow rate	<sup>c</sup>	335	0	0.0012	0.0011	MGD
Total suspended solids	<sup>d</sup>	22(17)	1.2	7.6		mg/L
Chlorine, total residual	<sup>d</sup>	22	0	0.62	0.15	mg/L

<sup>a</sup>Number in parentheses is the number of samples that were below the detection limit.

<sup>b</sup>Averages were not calculated for outfalls that had greater than 15% of the results below the detection limit. For outfalls with less than 15% of the results below the detection limit, any result below the detection limit was assigned a value at the detection limit for calculating an average for the parameter.

<sup>c</sup>Flow rate does not have a numerical limit; therefore, no compliance rates are generated.

<sup>d</sup>Monitoring only required; therefore, no compliance rates are generated.

<sup>e</sup>The permit specifies no detectable PCBs in the effluent without setting a numerical limit of detection.

<sup>f</sup>The monthly average is computed by the software used to prepare and submit the NPDES Monthly Operating Report. Parameters that are undetected are assumed to be zero in computing the monthly average.

**Table 2.4. USEC NPDES discharge monitoring results – 2005**

Parameter	Number of samples <sup>a</sup>	Concentration			Units
		Minimum	Maximum	Average <sup>b</sup>	
<i>Outfall 001 (X-230J7 East Holding Pond)</i>					
Arsenic, total recoverable	7(4)	< 9.53	47.7		µg/L
Copper, total recoverable	7(1)	< 2.9	8.2	5.7	µg/L
Cadmium, total recoverable	5(5)	< 0.29	< 2.81		µg/L
Chlorine, total residual	20(18)	< 0.02	0.024		mg/L
Dissolved solids	20(0)	151	236	203	mg/L
Flow rate	365	0.174	2.612	0.916	MGD
Fluoride, total	12(0)	0.01	0.2	0.2	mg/L
Manganese, total recoverable	7(0)	12.3	22.8	17.6	µg/L
Nickel, total recoverable	29(21)	< 1.85	9.98		µg/L
Oil and grease, total	49(48)	< 5	6.5		mg/L
pH	49	6.90	8.53	7.51	SU
Silver, total recoverable	5(4)	< 2.96	9.67		µg/L
Suspended solids	49(41)	< 2	< 22		mg/L
Zinc, total recoverable	12(0)	7.7	58.2	28.9	µg/L
<i>Outfall 002 (X-230K South Holding Pond)</i>					
Cadmium, total recoverable	5(5)	< 0.29	< 2.45		µg/L
Flow rate	359	0	1.79	0.432	MGD
Fluoride, total	12(1)	< 0.1	0.3	0.2	mg/L
Manganese, total recoverable	29(0)	65.7	399	168	µg/L
Mercury, total	20(0)	0	10	2.6	ng/L
Oil and grease, total	49(48)	< 5	< 555		mg/L
pH	49	6.92	8.53	7.72	SU
Silver, total recoverable	49(42)	< 1.28	8.03		µg/L
Suspended solids	49(0)	3.8	23.6	10.6	mg/L
Thallium, total recoverable	35(21)	< 12.5	267		µg/L
<i>Outfall 003 (X-6619 Sewage Treatment Plant)</i>					
Acute toxicity, <i>Ceriodaphnia dubia</i>	4(4)	< 1	< 1		TUa
Acute toxicity, <i>Pimephales promelas</i>	2(2)	< 1	< 1		TUa
Ammonia, nitrogen	25(14)	< 0.1	1.1		mg/L
Biochemical oxygen demand	49(48)	< 5	11.1		mg/L
Chlorine, total residual	128(128)	< 0.01	< 0.02		mg/L
Copper, total recoverable	20(14)	0.6	17.2		µg/L
Fecal coliform	24(0)	1	388	34	#/100 mL
Flow rate	365	0.142	2.99	0.303	MGD
Mercury, total	12(0)	0	20	10	ng/L
Nitrate, nitrogen	7(0)	3.6	7.5	5.5	mg/L
Nitrite + nitrate	5(0)	3.8	8.5	5.2	mg/L
Oil and grease, total	4(4)	< 5	< 5		mg/L
pH	250	4.31	8.11	7.31	SU
Silver, total recoverable	12(11)	< 1.28	< 4.66		µg/L
Suspended solids	49(46)	< 2	< 22		mg/L
Zinc, total recoverable	12(2)	< 2.18	50.9		µg/L
<i>Outfall 004 (Cooling Tower Blowdown)</i>					
Acute toxicity, <i>Ceriodaphnia dubia</i>	4(4)	< 1	< 1		TUa
Acute toxicity, <i>Pimephales promelas</i>	4(2)	< 1	1.1		TUa

**Table 2.4. USEC NPDES discharge monitoring results – 2005 (continued)**

Parameter	Number of samples <sup>a</sup>	Concentration			Units
		Minimum	Maximum	Average <sup>b</sup>	
<i>Outfall 004 (Cooling Tower Blowdown) (continued)</i>					
Chlorine, total residual	15(15)	< 0.02	< 0.02		mg/L
Copper, total recoverable	12(1)	< 3.01	20.2	10.1	µg/L
Dissolved solids	12(0)	149	304	249	mg/L
Flow rate	365	0	1.219	0.394	MGD
Mercury, total	5(0)	2	2.7	2.3	ng/L
Oil and grease, total	16(15)	< 5	6.1		mg/L
pH	12	6.82	7.74	7.31	SU
Suspended solids	12(6)	< 2	8		mg/L
Total residual oxidants	33(33)	< 0.01	< 0.02		mg/L
Zinc, total recoverable	12(2)	< 2.18	90.5		µg/L
<i>Outfall 005 (X-611B Lime Sludge Lagoon)</i>					
Flow rate	88	0	8.722	0.306	MGD
PCB, total	1(1)	< 0.5			µg/L
pH	4	8.33	9.42	9.09	SU
Suspended solids	4(0)	5	9.6	6.9	mg/L
<i>Outfall 009 (X-230L North Holding Pond)</i>					
Cadmium, total recoverable	5(5)	< 0.29	< 2.81		µg/L
Flow rate	363	0	1.807	0.376	MGD
Fluoride, total	12(0)	0.03	0.3	0.2	mg/L
Manganese, total recoverable	7(0)	50	222	122	µg/L
Oil and grease, total	12(12)	< 5	< 5		mg/L
pH	49	6.58	8.27	7.52	SU
Suspended solids	49(4)	< 2	89	10	mg/L
Zinc, total recoverable	12(2)	< 2.18	46.5		µg/L
<i>Outfall 010 (X-230J5 Northwest Holding Pond)</i>					
Cadmium, total recoverable	5(4)	< 0.29	< 2.81		µg/L
Flow rate	361	0.023	0.770	0.280	MGD
Manganese, total recoverable	15(0)	64.6	132	90.4	µg/L
Mercury, total	5(0)	1	3	1.5	ng/L
Oil and grease, total	12(12)	< 5	< 5		mg/L
pH	25	6.71	8.18	7.37	SU
Suspended solids	25(2)	< 2	193.2	22.4	mg/L
Zinc, total recoverable	12(2)	< 2.18	60.8		µg/L
<i>Outfall 011 (X-230J6 Northeast Holding Pond)</i>					
Cadmium, total recoverable	5(5)	< 0.29	< 2.81		µg/L
Copper, total recoverable	12(7)	< 0.597	12.2		µg/L
Flow rate	335	0	0.155	0.010	MGD
Fluoride, total	12(0)	0.2	0.3	0.2	mg/L
Oil and grease, total	25(25)	< 5	< 5		mg/L
pH	25	6.83	8.55	7.44	SU
Suspended solids	25(11)	< 2	12.4		mg/L
Water temperature	15	4.1	23.4	13.9	°C
Zinc, total recoverable	12(1)	< 2.18	91.3	33.1	µg/L
<i>Outfall 602 (X-621 Coal Pile Runoff Treatment Facility)</i>					
Flow rate	365	0	0.042	0.016	MGD
Iron, total	24(0)	78.8	1200	436	µg/L
Manganese, total	24(0)	30.5	712	122	µg/L
pH	24	7.02	9.2	8.12	SU
Suspended solids	24(0)	2.2	23	6.4	mg/L

**Table 2.4. USEC NPDES discharge monitoring results – 2005 (continued)**

Parameter	Number of samples <sup>a</sup>	Concentration			Units
		Minimum	Maximum	Average <sup>b</sup>	
<i>Outfall 604 (X-700 Biodenitrification Facility)</i>					
Copper, total	9(5)	< 2.9	8.4		µg/L
Flow rate	272	0	0.090	0.006	MGD
Iron, total	9(0)	58.5	1010	260	µg/L
Nickel, total	9(6)	4.7	11.8		µg/L
Nitrate, nitrogen	9(3)	< 0.01	60.8		mg/L
pH	9	7.35	8.15	7.75	SU
Zinc, total	9(1)	< 2.18	31.3	14.1	µg/L
<i>Outfall 605 (X-705 Decontamination Microfiltration System)</i>					
Ammonia, nitrogen	10(7)	< 0.1	1.2		mg/L
Chromium, hexavalent	10(10)	< 0.01	< 0.025		mg/L
Chromium, total	10(4)	< 2.7	133		µg/L
Copper, total	10(1)	< 7.71	165	38.4	µg/L
Flow rate	275	0	0.024	0.002	MGD
Iron, total	10(1)	< 3.52	3770	422	µg/L
Kjeldahl nitrogen	10(0)	0.6	2.4	1.2	mg/L
Nickel, total	10(3)	< 8.47	86.5		µg/L
Nitrogen, nitrate	10(0)	0.31	82	27	mg/L
Nitrogen, nitrite	10(3)	< 0.1	1.3		mg/L
Oil and grease, total	10(9)	< 5	8.8		mg/L
pH	10	7.62	9.03	8.09	SU
Sulfate	10(0)	57.8	82.4	71.6	mg/L
Suspended solids	10(10)	< 2	< 2		mg/L
Trichloroethene	10(10)	< 1	< 5		µg/L
Zinc, total	10(1)	< 2.18	55.8	17.8	µg/L
<i>Station Number 801 (Scioto River control sample, upstream of Outfalls 003 and 004)</i>					
48-hr. acute toxicity, <i>Ceriodaphnia dubia</i>	4(4)	< 1	< 1		% affected
96-hr. acute toxicity, <i>Pimephales promelas</i>	4(1)	< 1	10		% affected
<i>Station Number 901 (Scioto River near-field sample, midplume downstream of Outfalls 003 and 004)</i>					
48-hr. acute toxicity, <i>Ceriodaphnia dubia</i>	2(2)	< 1	< 1		% affected
96-hr. acute toxicity, <i>Pimephales promelas</i>	2(1)	< 1	10		% affected
<i>Station Number 902 (downstream of Outfall 001)</i>					
Water temperature	98	5	28	18	°C
<i>Station Number 903 (downstream of Outfall 002)</i>					
Water temperature	98	2	29	16	°C

<sup>a</sup>Number in parentheses is the number of samples that were below the detection limit.

<sup>b</sup>Averages were not calculated for outfalls that had greater than 15% of the results below the detection limit. For outfalls with less than 15% of the results below the detection limit, any result below the detection limit was assigned a value at the detection limit for calculating an average for the parameter.

**Table 2.5. Radionuclides and PCBs in surface water runoff samples from DOE depleted uranium cylinder storage yards – 2005**

Sample location	Parameter <sup>a</sup>	Number of samples <sup>b</sup>	Minimum <sup>c</sup>	Maximum <sup>c</sup>	Average <sup>d</sup>	DCG <sup>e</sup>
X745-C1	americium-241	2(2)	< 0.009576	< 0.03027		30
	neptunium-237	2(2)	0	0		30
	PCB-1016	2(2)	< 1	< 1		
	PCB-1221	2(2)	< 1	< 1		
	PCB-1232	2(2)	< 1	< 1		
	PCB-1242	2(2)	< 1	< 1		
	PCB-1248	2(2)	< 1	< 1		
	PCB-1254	2(2)	< 1	< 1		
	PCB-1260	2(2)	< 1	< 1		
	PCB-1262	1(1)	< 1	< 1		
	PCB-1268	1(1)	< 1	< 1		
	plutonium-238	2(2)	< 0.00682	< 0.02653		40
	plutonium-239/240	2(2)	0	0		30
	technetium-99	7(6)	0	11.1		100,000
	uranium	12(0)	0.629	21	5.0	
	uranium-233/234	7(0)	0.2734	2.868	0.873	500
	uranium-235	7(3)	< 0.008641	0.09869		600
	uranium-236	7(7)	0	< 0.03325		500
	uranium-238	7(0)	0.2105	2.537	0.808	600
X745-C2	americium-241	2(2)	0	< 0.0153		30
	neptunium-237	2(2)	0	< 0.01055		30
	PCB-1016	2(2)	< 1	< 1		
	PCB-1221	2(2)	< 1	< 1		
	PCB-1232	2(2)	< 1	< 1		
	PCB-1242	2(2)	< 1	< 1		
	PCB-1248	2(2)	< 1	< 1		
	PCB-1254	2(2)	< 1	< 1		
	PCB-1260	2(2)	< 1	< 1		
	PCB-1262	1(1)	< 1	< 1		
	PCB-1268	1(1)	< 1	< 1		
	plutonium-238	2(2)	< 0.01421	< 0.03149		40
	plutonium-239/240	2(2)	0	0		30
	technetium-99	7(7)	0	< 5.09		100,000
	uranium	12(0)	1.2	8.7	4.4	
	uranium-233/234	7(0)	0.2829	1.53	0.546	500
	uranium-235	7(3)	< 0.009431	0.06612		600
	uranium-236	7(7)	0	< 0.02813		500
	uranium-238	7(0)	0.8775	2.247	1.053	600
X745-C3	americium-241	2(2)	0	< 0.03822		30
	neptunium-237	2(2)	0	0		30
	PCB-1016	2(2)	< 1	< 1		
	PCB-1221	2(2)	< 1	< 1		
	PCB-1232	2(2)	< 1	< 1		
	PCB-1242	2(2)	< 1	< 1		
	PCB-1248	2(2)	< 1	< 1		
	PCB-1254	2(2)	< 1	< 1		
	PCB-1260	2(2)	< 1	< 1		
	PCB-1262	1(1)	< 1	< 1		
	PCB-1268	1(1)	< 1	< 1		

**Table 2.5. Radionuclides and PCBs in surface water runoff samples from DOE depleted uranium cylinder storage yards – 2005 (continued)**

Sample location	Parameter <sup>a</sup>	Number of samples <sup>b</sup>	Minimum <sup>c</sup>	Maximum <sup>c</sup>	Average <sup>d</sup>	DCG <sup>e</sup>
X745-C3	plutonium-238	2(2)	0	0		40
	plutonium-239/240	2(2)	0	0		30
	technetium-99	7(7)	0	< 7.48		100,000
	uranium	12(0)	0.1	6.5	2.1	
	uranium-233/234	7(0)	0.1633	3.717	0.566	500
	uranium-235	7(5)	0	0.09351		600
	uranium-236	7(7)	0	< 0.03718		500
	uranium-238	7(0)	0.189	1.683	0.460	600
	americium-241	2(2)	< 0.006933	< 0.03416		30
	neptunium-237	2(2)	0	0		30
X745-C4	PCB-1016	2(2)	< 1	< 1		
	PCB-1221	2(2)	< 1	< 1		
	PCB-1232	2(2)	< 1	< 1		
	PCB-1242	2(2)	< 1	< 1		
	PCB-1248	2(2)	< 1	< 1		
	PCB-1254	2(2)	< 1	< 1		
	PCB-1260	2(2)	< 1	< 1		
	PCB-1262	1(1)	< 1	< 1		
	PCB-1268	1(1)	< 1	< 1		
	plutonium-238	2(2)	0	< 0.03118		40
	plutonium-239/240	2(2)	0	0.01921		30
	technetium-99	7(7)	0	< 6.96		100,000
	uranium	12(0)	0.67	9.2	3.5	
	uranium-233/234	7(0)	0.1991	1.542	0.445	500
	uranium-235	7(6)	< 0.008759	0.07994		600
	uranium-236	7(6)	0	0.03589		500
	uranium-238	7(0)	0.5109	2.522	0.906	600
X745-E1	americium-241	2(2)	< 0.01037	< 0.01894		30
	neptunium-237	2(2)	0	< 0.01931		30
	PCB-1016	2(2)	< 1	< 1		
	PCB-1221	2(2)	< 1	< 1		
	PCB-1232	2(2)	< 1	< 1		
	PCB-1242	2(2)	< 1	< 1		
	PCB-1248	2(2)	< 1	< 1		
	PCB-1254	2(2)	< 1	< 1		
	PCB-1260	2(2)	< 1	< 1		
	PCB-1262	1(1)	< 1	< 1		
	PCB-1268	1(1)	< 1	< 1		
	plutonium-238	2(2)	< 0.00000716	< 0.02887		40
	plutonium-239/240	2(2)	0	< 0.009642		30
	technetium-99	7(7)	0	< 7.49		100,000
	uranium	12(0)	0.23	2.45	1.0	
	uranium-233/234	7(0)	0.1572	0.9846	0.294	500
	uranium-235	7(7)	0	< 0.03169		600
	uranium-236	7(7)	0	< 0.009676		500
	uranium-238	7(0)	0.1939	0.8203	0.567	600

**Table 2.5. Radionuclides and PCBs in surface water runoff samples from DOE depleted uranium cylinder storage yards – 2005 (continued)**

Sample location	Parameter <sup>a</sup>	Number of samples <sup>b</sup>	Minimum <sup>c</sup>	Maximum <sup>c</sup>	Average <sup>d</sup>	DCG <sup>e</sup>
X745-G1A	americium-241	2(2)	< 0.009386	< 0.02222		30
	neptunium-237	2(2)	0	< 0.00001843		30
	PCB-1016	2(2)	< 1	< 1		
	PCB-1221	2(2)	< 1	< 1		
	PCB-1232	2(2)	< 1	< 1		
	PCB-1242	2(2)	< 1	< 1		
	PCB-1248	2(2)	< 1	< 1		
	PCB-1254	2(2)	< 1	< 1		
	PCB-1260	2(2)	< 1	< 1		
	PCB-1262	1(1)	< 1	< 1		
	PCB-1268	1(1)	< 1	< 1		
	plutonium-238	2(2)	< 0.009197	< 0.02918		40
	plutonium-239/240	2(2)	< 0.000009189	< 0.007309		30
	technetium-99	5(5)	0	< 7.01		100,000
	uranium	6(0)	0.6049	11	3.733	
	uranium-233/234	5(0)	0.3904	3.364	1.448	500
	uranium-235	5(3)	0	0.1408		600
	uranium-236	5(5)	0	< 0.007445		500
	uranium-238	5(0)	0.2033	3.036	1.256	600
X745-G2	americium-241	3(3)	0	< 0.009193		30
	neptunium-237	3(3)	0	0		30
	PCB-1016	3(3)	< 1	< 1		
	PCB-1221	3(3)	< 1	< 1		
	PCB-1232	3(3)	< 1	< 1		
	PCB-1242	3(3)	< 1	< 1		
	PCB-1248	3(3)	< 1	< 1		
	PCB-1254	3(3)	< 1	< 1		
	PCB-1260	3(3)	< 1	< 1		
	PCB-1262	2(2)	< 1	< 1		
	PCB-1268	2(2)	< 1	< 1		
	plutonium-238	3(3)	< 0.000008308	< 0.03062		40
	plutonium-239/240	3(3)	0	< 0.01663		30
	technetium-99	6(6)	0	< 7.88		100,000
	uranium	11(0)	0.4	6.5	2.6	
	uranium-233/234	6(0)	0.1957	1.186	0.773	500
	uranium-235	6(5)	0	0.0531		600
	uranium-236	6(6)	0	< 0.01376		500
	uranium-238	6(0)	0.2705	1.177	0.728	600

<sup>a</sup>Uranium and PCBs are reported in  $\mu\text{g/L}$ ; all other parameters are reported in pCi/L.

<sup>b</sup>Number in parentheses is the number of samples that were below the detection limit.

<sup>c</sup>Minimum and maximum values reported as “0” may actually be negative results. Because of the statistical nature of radiation detection, results for samples that have no radioactivity are often negative values because background radioactivity is subtracted out. These negative value results are reported as “0” in the table for simplicity.

<sup>d</sup>Averages were not calculated for locations that had greater than 15% of the results below the detection limit. For locations with less than 15% of the results below the detection limit, any result below the detection limit was assigned a value at the detection limit to calculate the average for the parameter.

<sup>e</sup>Derived Concentration Guide (DCG)(pCi/L). DCGs are not available for PCBs and uranium.

**Table 2.6. Drainage basin monitoring of surface water and sediment for DOE depleted uranium cylinder storage yards – 2005**

Location	Parameter <sup>a</sup>	Third quarter <sup>b, c</sup>			Fourth quarter		
		SW-F	SW-UF	Sed	SW-F	SW-UF	Sed
UDS X01	PCB-1242	0.2U	0.2U	33U	0.2U	0.2U	33U
	PCB-1248	0.2U	0.2U	33U	0.2U	0.2U	33U
	PCB-1254	0.2U	0.2U	33U	0.2U	0.2U	33U
	PCB-1260	0.2U	0.2U	33U	0.2U	0.2U	33U
	PCB-1268	0.2U	0.2U	33U	0.2U	0.2U	33U
	Total PCB	1U	1U	300U	1U	1U	300U
RM-8	PCB-1242	0.2U	0.2U	33U	0.2U	0.2U	33U
	PCB-1248	0.2U	0.2U	33U	0.2U	0.2U	33U
	PCB-1254	0.2U	0.2U	33U	0.2U	0.2U	33U
	PCB-1260	0.2U	0.2U	33U	0.2U	0.2U	33U
	PCB-1268	0.2U	0.2U	33U	0.2U	0.2U	33U
	Total PCB	1U	1U	300U	1U	1U	300U
UDS X02	PCB-1242	0.2U	0.2U	33U	0.2U	0.2U	33U
	PCB-1248	0.2U	0.2U	33U	0.2U	0.2U	33U
	PCB-1254	0.2U	0.2U	33U	0.2U	0.2U	33U
	PCB-1260	0.2U	0.2U	33U	0.2U	0.2U	71
	PCB-1268	0.2U	0.2U	33U	0.2U	0.2U	33U
	Total PCB	1U	1U	300U	1U	1U	71J
RM-10	PCB-1242	0.2U	0.2U	33U	0.2U	0.2U	33U
	PCB-1248	0.2U	0.2U	33U	0.2U	0.2U	33U
	PCB-1254	0.2U	0.2U	33U	0.2U	0.2U	33U
	PCB-1260	0.2U	0.2U	33U	0.2U	0.2U	37
	PCB-1268	0.2U	0.2U	33U	0.2U	0.2U	33U
	Total PCB	1U	1U	300U	1U	1U	37J

<sup>a</sup>Results for surface water (SW) are reported in  $\mu\text{g}/\text{L}$ ; results for sediment (Sed) are reported in  $\mu\text{g}/\text{kg}$ .

<sup>b</sup>Monitoring began in the third quarter of 2005.

<sup>c</sup>Abbreviations and data qualifiers are as follows: SW-F – filtered surface water; SW-UF – unfiltered surface water; Sed – sediment; U – undetected.

**Table 2.7. Ambient air monitoring program summary for radionuclides and fluoride – 2005**

Sampling Location	Parameter <sup>a</sup>	No. of measurements <sup>b</sup>	Minimum <sup>c, d</sup>	Maximum <sup>c</sup>	Average <sup>d, e</sup>
<i>On-site air samplers</i>					
A8	americium-241	7(7)	0	5.1E-06	
	fluoride	50(39)	1.0E-02	1.6E-01	
	neptunium-237	7(7)	0	7.4E-06	
	plutonium-238	7(7)	2.3E-06	1.9E-05	
	plutonium-239/240	7(7)	0	2.4E-06	
	technetium-99	12(12)	0	6.9E-04	
	uranium	7(0)	3.3E-06	6.9E-04	4.3E-04
	uranium-233/234	7(0)	9.7E-07	2.3E-04	1.4E-04
	uranium-235	7(6)	1.9E-08	2.2E-05	
	uranium-236	7(7)	0	1.9E-06	
	uranium-238	7(0)	1.1E-06	2.3E-04	1.4E-04
A10	americium-241	7(7)	0	5.1E-06	
	fluoride	52(25)	1.0E-02	9.0E-02	
	neptunium-237	7(7)	0	6.5E-06	
	plutonium-238	7(7)	0	1.0E-05	
	plutonium-239/240	7(7)	0	7.6E-06	
	technetium-99	12(12)	0	6.3E-04	
	uranium	7(0)	2.8E-04	8.1E-04	4.4E-04
	uranium-233/234	7(0)	1.0E-04	3.2E-04	1.8E-04
	uranium-235	7(6)	2.1E-09	1.4E-05	
	uranium-236	7(7)	0	3.1E-06	
	uranium-238	7(0)	9.3E-05	2.7E-04	1.5E-04
A29	americium-241	7(7)	0	8.6E-06	
	fluoride	51(29)	1.0E-02	2.9E-01	
	neptunium-237	7(7)	0	1.9E-06	
	plutonium-238	7(7)	0	2.6E-05	
	plutonium-239/240	7(7)	0	7.0E-06	
	technetium-99	12(12)	0	3.9E-04	
	uranium	7(0)	3.4E-04	5.6E-04	4.6E-04
	uranium-233/234	7(0)	1.0E-04	1.9E-04	1.5E-04
	uranium-235	7(6)	4.0E-06	1.5E-05	
	uranium-236	7(7)	0	2.1E-06	
	uranium-238	7(0)	1.2E-04	1.9E-04	1.5E-04
A36	americium-241	7(7)	0	4.5E-06	
	fluoride	52(20)	1.0E-02	7.0E-02	
	neptunium-237	7(7)	0	6.4E-06	
	plutonium-238	7(7)	1.7E-06	1.2E-05	
	plutonium-239/240	7(7)	0	7.0E-06	
	technetium-99	12(12)	0	1.3E-03	
	uranium	7(0)	3.9E-04	2.5E-03	8.7E-04
	uranium-233/234	7(0)	1.6E-04	8.3E-04	3.5E-04
	uranium-235	7(4)	4.3E-06	5.4E-05	
	uranium-236	7(7)	0	8.2E-06	
	uranium-238	7(0)	1.3E-04	8.4E-04	2.9E-04
A40	fluoride	52(23)	2.0E-02	1.3E-01	

**Table 2.7. Ambient air monitoring program summary for radionuclides and fluoride – 2005 (continued)**

Sampling Location	Parameter <sup>a</sup>	No. of measurements <sup>b</sup>	Minimum <sup>c, d</sup>	Maximum <sup>c</sup>	Average <sup>d, e</sup>
<i>On-site air samplers</i>					
T7	americium-241	7(7)	0	5.3E-06	
	neptunium-237	7(7)	0	7.1E-06	
	plutonium-238	7(7)	3.4E-09	7.0E-06	
	plutonium-239/240	7(7)	0	3.3E-06	
	technetium-99	12(12)	0	8.3E-04	
	uranium	7(0)	3.1E-04	5.6E-04	4.2E-04
	uranium-233/234	7(0)	8.0E-05	2.4E-04	1.8E-04
	uranium-235	7(6)	2.1E-06	1.1E-05	
	uranium-236	7(7)	0	8.6E-06	
	uranium-238	7(0)	1.0E-04	1.9E-04	1.4E-04
<i>Off-site air samplers</i>					
A3	americium-241	7(7)	0	7.6E-06	
	fluoride	52(28)	1.0E-02	1.2E-01	
	neptunium-237	7(7)	0	6.4E-06	
	plutonium-238	7(7)	0	7.4E-06	
	plutonium-239/240	7(7)	0	3.3E-06	
	technetium-99	12(12)	0	3.9E-04	
	uranium	7(0)	2.5E-04	9.0E-04	5.0E-04
	uranium-233/234	7(0)	7.6E-05	3.3E-04	1.8E-04
	uranium-235	7(6)	1.9E-06	1.2E-05	
	uranium-236	7(7)	0	3.4E-06	
	uranium-238	7(0)	8.3E-05	3.0E-04	1.7E-04
A6	americium-241	7(7)	0	7.7E-06	
	fluoride	50(40)	1.0E-02	1.6E-01	
	neptunium-237	7(7)	0	4.8E-06	
	plutonium-238	7(7)	3.8E-06	3.4E-05	
	plutonium-239/240	7(7)	0	4.4E-06	
	technetium-99	12(12)	0	1.0E-03	
	uranium	7(0)	3.2E-04	6.2E-04	4.7E-04
	uranium-233/234	7(0)	7.1E-05	2.4E-04	1.7E-04
	uranium-235	7(7)	0	9.6E-06	
	uranium-236	7(7)	0	2.5E-06	
	uranium-238	7(0)	1.1E-04	2.1E-04	1.6E-04
A9	americium-241	7(7)	0	4.6E-06	
	fluoride	52(40)	1.0E-02	7.0E-02	
	neptunium-237	7(7)	0	8.1E-06	
	plutonium-238	7(7)	0	9.0E-06	
	plutonium-239/240	7(7)	0	4.5E-06	
	technetium-99	12(12)	0	5.2E-04	
	uranium	7(0)	3.2E-04	5.4E-04	4.2E-04
	uranium-233/234	7(0)	1.1E-04	2.2E-04	1.5E-04
	uranium-235	7(7)	0	1.3E-05	
	uranium-236	7(7)	0	5.2E-06	
	uranium-238	7(0)	1.1E-04	1.8E-04	1.4E-04

**Table 2.7. Ambient air monitoring program summary for radionuclides and fluoride – 2005 (continued)**

Sampling Location	Parameter <sup>a</sup>	No. of measurements <sup>b</sup>	Minimum <sup>c, d</sup>	Maximum <sup>c</sup>	Average <sup>d, e</sup>
A12	americium-241	7(7)	0	5.2E-06	
	fluoride	52(24)	1.0E-02	1.4E-01	
	neptunium-237	7(7)	0	6.5E-06	
	plutonium-238	7(7)	1.6E-09	4.5E-06	
	plutonium-239/240	7(7)	0	7.0E-06	
	technetium-99	12(12)	0	5.3E-04	
	uranium	7(0)	2.4E-04	5.5E-04	4.3E-04
	uranium-233/234	7(0)	9.8E-05	2.1E-04	1.7E-04
	uranium-235	7(4)	0	1.9E-05	
	uranium-236	7(7)	0	2.7E-06	
	uranium-238	7(0)	8.2E-05	1.8E-04	1.4E-04
A15	americium-241	7(7)	0	5.4E-06	
	fluoride	52(34)	1.0E-02	6.0E-02	
	neptunium-237	7(7)	0	4.9E-06	
	plutonium-238	7(7)	0	4.5E-06	
	plutonium-239/240	7(7)	0	6.0E-06	
	technetium-99	12(11)	0	6.4E-04	
	uranium	7(0)	2.8E-04	7.4E-04	4.4E-04
	uranium-233/234	7(0)	9.1E-05	3.1E-04	1.9E-04
	uranium-235	7(5)	0	1.4E-05	
	uranium-236	7(7)	0	5.6E-06	
	uranium-238	7(0)	9.2E-05	2.5E-04	1.5E-04
A23	americium-241	7(7)	0	5.2E-06	
	fluoride	52(28)	1.0E-02	6.0E-02	
	neptunium-237	7(7)	0	5.1E-06	
	plutonium-238	7(7)	5.1E-09	1.5E-05	
	plutonium-239/240	7(7)	0	5.0E-06	
	technetium-99	12(12)	0	4.7E-04	
	uranium	7(0)	3.0E-04	5.7E-04	4.5E-04
	uranium-233/234	7(0)	8.6E-05	2.2E-04	1.7E-04
	uranium-235	7(6)	0	1.2E-05	
	uranium-236	7(7)	0	4.4E-06	
	uranium-238	7(0)	9.9E-05	1.9E-04	1.5E-04
A24	americium-241	7(7)	0	4.0E-06	
	fluoride	51(29)	1.0E-02	2.1E-01	
	neptunium-237	7(7)	2.7E-09	8.6E-06	
	plutonium-238	7(7)	1.6E-09	1.9E-05	
	plutonium-239/240	7(7)	2.5E-09	6.0E-06	
	technetium-99	12(12)	0	3.7E-04	
	uranium	7(0)	3.2E-04	1.0E-03	6.5E-04
	uranium-233/234	7(0)	1.1E-04	3.3E-04	2.3E-04
	uranium-235	7(5)	4.5E-06	1.2E-05	
	uranium-236	7(7)	0	4.0E-06	
	uranium-238	7(0)	1.1E-04	3.4E-04	2.2E-04

**Table 2.7. Ambient air monitoring program summary for radionuclides and fluoride – 2005 (continued)**

Sampling Location	Parameter <sup>a</sup>	No. of measurements <sup>b</sup>	Minimum <sup>c, d</sup>	Maximum <sup>c</sup>	Average <sup>d, e</sup>
A28	americium-241	7(7)	0	4.8E-06	
	fluoride	52(35)	1.0E-02	9.0E-02	
	neptunium-237	7(7)	0	2.4E-06	
	plutonium-238	7(7)	1.9E-06	9.7E-06	
	plutonium-239/240	7(7)	0	7.2E-06	
	technetium-99	12(12)	0	3.8E-04	
	uranium	7(0)	2.6E-04	5.5E-04	3.8E-04
	uranium-233/234	7(0)	9.0E-05	1.8E-04	1.3E-04
	uranium-235	7(5)	0	1.2E-05	
	uranium-236	7(7)	0	3.4E-06	
	uranium-238	7(0)	8.7E-05	1.8E-04	1.3E-04
A37 (background)	americium-241	7(7)	0	7.7E-06	
	fluoride	50(29)	2.0E-02	7.0E-02	
	neptunium-237	7(7)	0	2.4E-06	
	plutonium-238	7(7)	0	1.0E-05	
	plutonium-239/240	7(7)	0	4.8E-06	
	technetium-99	12(12)	0	9.7E-04	
	uranium	7(0)	2.6E-04	5.8E-04	4.4E-04
	uranium-233/234	7(0)	7.6E-05	1.7E-04	1.3E-04
	uranium-235	7(7)	0	1.2E-05	
	uranium-236	7(7)	0	2.9E-06	
	uranium-238	7(0)	8.9E-05	2.0E-04	1.5E-04
A41	americium-241	7(7)	0	4.3E-06	
	fluoride	52(38)	2.0E-02	1.7E-01	
	neptunium-237	7(7)	0	1.2E-05	
	plutonium-238	7(7)	2.9E-09	7.5E-06	
	plutonium-239/240	7(7)	0	3.6E-06	
	technetium-99	12(11)	0	1.4E-03	
	uranium	7(0)	4.0E-04	7.1E-04	5.0E-04
	uranium-233/234	7(0)	8.6E-05	2.8E-04	1.8E-04
	uranium-235	7(4)	0	2.0E-05	
	uranium-236	7(7)	0	4.4E-09	
	uranium-238	7(0)	1.3E-04	2.4E-04	1.7E-04

<sup>a</sup>All parameters are measured in pCi/m<sup>3</sup> with the exception of uranium and fluoride which are measured in µg/m<sup>3</sup>.

<sup>b</sup>Radiological samples are analyzed monthly, samples for fluoride are analyzed weekly. Number in parentheses is the number of samples that were below the detection limit.

<sup>c</sup>Results are provided in scientific notation. The number and sign (+ or -) to the right of the “E” indicate the number of places to the right or left of the decimal point. For example, 3.4E-04 is 0.00034 (the decimal point moves four places to the left); 2.1E+02 is 210 (the decimal point moves two places to the right).

<sup>d</sup>Minimum values reported as “0” may actually be negative results. Because of the statistical nature of radiation detection, results for samples that have no radioactivity are often negative values because background radioactivity is subtracted out. These negative value results are reported as “0” in the table for simplicity.

<sup>e</sup>Averages are not calculated for locations that had greater than 15% of the results below the detection limit. If the analytical result for a sample was below the detection limit, the ambient air concentration was calculated based on the detection limit for the sample.

**Table 2.8. DOE environmental radiation monitoring program (mrem) – 2005**

Location	First quarter	Second quarter	Third quarter	Fourth quarter	Cumulative annual whole body dose <sup>a</sup>
#1404A	20	18	22	19	79
#518	21	19	26	18	84
#862	33	29	34	32	128
#874	167	168	197	171	703
#906	20	17	20	19	76
#933	34	30	35	32	131
A12	24	20	23	20	87
A15	22	20	25	21	88
A23	22	20	22	20	84
A24	25	21	25	22	93
A28	22	18	22	19	81
A29	24	20	25	22	91
A3	21	20	21	17	79
A36	23	20	25	21	89
A40	18	16	17	15	66
A6	18	19	21	19	77
A8	25	23	27	23	98
A9	23	21	24	21	89
X-230J2	23	20	25	21	89
Control <sup>b</sup>	25	23	27	19	94
Trip blank <sup>b</sup>	28	21	25	23	97

<sup>a</sup>The annual occupational whole body dose limit set by 10 CFR Part 20 is 5000 mrem.

<sup>b</sup>The control dosimeter is sent from the laboratory at the beginning of the quarter, remains at PORTS throughout the quarter in a low background location, and is returned to the laboratory with the other dosimeters at the end of the quarter. The trip blank dosimeter is sent from the laboratory at the beginning of the quarter, accompanies the sample team to the field locations at the beginning and end of each quarter and is returned to the laboratory with the other dosimeters at the end of the quarter. The control and trip blank measurements are an indication of background radiation.

**Table 2.9. Environmental radiation monitoring (mrem) at locations near DOE depleted uranium cylinder storage yards – 2005**

Location	First quarter			Second quarter		
	Deep <sup>a,b</sup>		Shallow <sup>a,c</sup>	Deep <sup>a,b</sup>		Shallow <sup>a,c</sup>
	X+G	N		X+G	N	
#41	28	ND	28	31	ND	31
#868	399	31	430	322	ND	322
#874	175	36	211	155	ND	155
#882	228	32	260	196	ND	196
#890	49	ND	49	41	ND	41

  

Location	Third quarter			Fourth quarter		
	Deep <sup>a,b</sup>		Shallow <sup>a,c</sup>	Deep <sup>a,b</sup>		Shallow <sup>a,c</sup>
	X+G	N		X+G	N	
#41	47	ND	47	53	ND	53
#868	404	ND	404	352	23	375
#874	182	ND	182	125	25	150
#882	250	ND	250	219	21	240
#890	49	ND	49	42	ND	42

<sup>a</sup>ND – not detected above the minimum reportable dose.

<sup>b</sup>Deep dose (dose equivalent at a tissue depth of 1 cm) applies to external whole body exposure and consists of x-ray and gamma radiation (X+G) and neutron radiation (N).

<sup>c</sup>Shallow dose (dose equivalent at a tissue depth of 0.007 cm) applies to exposure of the skin or an extremity.

**Table 2.10. Local surface water monitoring program results for chemical and radiological parameters – 2005**

Location	Parameter <sup>a,b</sup>	March/ April <sup>c,d</sup>	June <sup>c,d</sup>	August/ October <sup>c,d</sup>	December <sup>c,d</sup>
Scioto River	aluminum	2680	171B	244B	4260
RW-1 (downstream)	americium-241	-0.02402U	na	0.0435U	na
	antimony	17.4U	25.7B	19.2U	37.6U
	arsenic	15.6U	20.4U	20.4U	17.8U
	barium	65.9	77.1	82.2	74.1
	beryllium	0.17U	0.6B	0.245U	0.212U
	cadmium	2.49U	6.8B	2.81U	2.45U
	calcium	59900	66800	77100	62600
	chromium	4.99U	2.7U	2.7U	5.34B
	cobalt	3.17U	3.18U	3.18U	2.67U
	copper	3.76U	4.53B	2.9U	7.71U
	fluoride	0.2	na	0.4	na
	iron	2120	350N	472	3540
	lead	20.5U	25.1U	25.1U	27.3U
	lithium	5.2B	8.52B	12.6B	4.99B
	magnesium	22800	31100	26900	23300
	manganese	41.4	73.6	86.4	63.9
	molybdenum	3.78B	8.18B	11.3B	5.04B
	neptunium-237	-0.01906U	na	-0.02034U	na
	nickel	4.9U	8.47U	8.47U	23.9B
	PCB, total	0.5U	0.5U	0.5U	0.5U
	phosphorus	31.1B	141	280	34.6B
	plutonium-238	0.01904U	na	0.04062U	na
	plutonium-239	0.01904U	na	-0.02027U	na
	potassium	3590BJ	4490B	6030B	6490B
	selenium	26.7U	37.3U	37.3U	52.9U
	silicon	7480J	1080*J	2460	13300J
	silver	4.37U	3.7U	3.7U	4.66U
	sodium	35000	39100J	56600	19200
	technetium-99	-3.83U	na	1.94U	na
	thallium	15.3B	14.6U	20.7B	23.8U
	tin	10.8JU	14JU	14U	10.9BJ
	titanium	88.6	1.05U	1.05U	150
	total phosphate as phosphorus	0.2	na	0.2	na
	uranium	1.378	na	1.325	na
	uranium-233/234	0.7791	na	0.6128	na
	uranium-235	0.04928U	na	0.02607U	na
	uranium-236	0U	na	0U	na
	uranium-238	0.4586	na	0.4429	na
	vanadium	5.68B	3.63U	3.63U	9.32B
	zinc	18.8B	7.65B	2.18U	27.8

**Table 2.10. Local surface water monitoring program results for chemical and radiological parameters – 2005 (continued)**

Location	Parameter <sup>a,b</sup>	March/ April <sup>c,d</sup>	June <sup>c,d</sup>	August/ October <sup>c,d</sup>	December <sup>c,d</sup>
Scioto River	aluminum	3650	288BN	219B	5160
RW-6 (upstream)	americium-241	0.02117U	na	0.02416U	na
	antimony	17.4U	19.2U	19.2U	37.6U
	arsenic	17.6B	20.4U	20.4U	17.8U
	barium	75.2	74.5	79.1	78.4
	beryllium	0.17U	0.55B	0.245U	0.212U
	cadmium	2.49U	3.55B	2.81U	2.45U
	calcium	63500	64100	75900	65400
	chromium	4.99U	2.7U	3.26B	7.02B
	cobalt	3.17U	3.18U	3.18U	2.67U
	copper	4.68B	2.9U	2.9U	7.71U
	fluoride	0.3	na	0.4	na
	iron	3260	400	445	4940
	lead	20.5U	25.1U	25.1U	27.3U
	lithium	6.48B	9.03B	9.77B	5.31B
	magnesium	24400	29500	26900	23300
	manganese	74.4	69.1	73	103
	molybdenum	3.72U	7.94U	12.9B	6.83B
	neptunium-237	-0.02301U	na	0.00002325U	na
	nickel	5.55B	8.47U	8.47U	9.61U
	PCB, total	0.5U	0.5U	0.5U	0.5U
	phosphorus	61.3B	126	261	122B
	plutonium-238	-0.02299U	na	0.00002319U	na
	plutonium-239/240	0.02303U	na	0.06963U	na
	potassium	4070BJ	4280B	5530B	7250B
	selenium	26.7U	37.3U	37.3U	52.9U
	silicon	9030J	1490*J	2620	15100J
	silver	4.37U	3.7U	3.7U	4.66U
	sodium	35600	38800J	56600	18400
	technetium-99	-3.76U	na	0.563U	na
	thallium	12.5U	21.2B	30.4B	23.8U
	tin	10.8JU	14JU	14U	21.8BJ
	titanium	117	1.81B	1.05U	171
	total phosphate as phosphorus	0.19	na	0.2	na
	uranium	1.754	na	1.832	na
	uranium-233/234	0.6493	na	0.5681	na
	uranium-235	0.02503U	na	0.0539U	na
	uranium-236	0.02247U	na	0.0242U	na
	uranium-238	0.5872	na	0.6105	na
	vanadium	9.3B	3.63U	3.63U	11.4B
	zinc	20.2B	11.5B	2.18U	30.6

**Table 2.10. Local surface water monitoring program results for chemical and radiological parameters – 2005 (continued)**

Location	Parameter <sup>a,b</sup>	April/May <sup>c,d</sup>	September <sup>c,d</sup>
Little Beaver Creek (downstream)	americium-241	0.05452U	-0.02377U
	neptunium-237	-0.02109U	-0.0935U
	plutonium-238	0.0000421U	0.09335U
	plutonium-239/240	0U	0.09335U
	technetium-99	1.35U	4.35U
	uranium	0.8974	1.002
	uranium-233/234	1.98	1.398
	uranium-235	0.07797U	0.1078U
	uranium-236	0.02334U	0U
	uranium-238	0.2944	0.3271
RW-8 (downstream)	americium-241	0.02218U	0.00004432U
	neptunium-237	0.00001869U	0.00004921U
	plutonium-238	0.07463U	0.04914U
	plutonium-239/240	0.01866U	0.02456U
	technetium-99	-1.49U	4.48U
	uranium	0.7265	0.3969
	uranium-233/234	1.081	0.8907
	uranium-235	0.04939U	0U
	uranium-236	0U	0U
	uranium-238	0.2397	0.1333
RW-12 (upstream)	americium-241	0.1291U	0.02151U
	neptunium-237	0.02311U	0.04814U
	plutonium-238	0.00004604U	0.072U
	plutonium-239/240	0.06913U	0.072U
	technetium-99	-2.48U	-0.901U
	uranium	0.06472U	0.9034
	uranium-233/234	0.2392U	0.4345
	uranium-235	0U	0U
	uranium-236	0U	0U
	uranium-238	0.02174U	0.02409U
Big Beaver Creek RW-13 (downstream)	americium-241	-0.2038U	0.02421U
	neptunium-237	0.00004663U	0.00004823U
	plutonium-238	0.04659U	0.02414U
	plutonium-239/240	0.0000465U	6.22U
	technetium-99	-1.51U	1.034
	uranium	0.9987	0.9722
	uranium-233/234	1.551	0.02668U
	uranium-235	0.07174U	0U
	uranium-236	0.04294U	0.345
	uranium-238	0.3289	0.02409U
RW-5 (upstream)	americium-241	0.1146U	0.00002436U
	neptunium-237	0.00003705U	0.04482U
	plutonium-238	0.1479	0.0894U
	plutonium-239/240	0.5362	0.06705U
	technetium-99	-4.32U	0.968U
	uranium	0.2428U	0.3697U
	uranium-233/234	0.1432U	0.8944
	uranium-235	0U	0U
	uranium-236	0U	0.02752U
	uranium-238	0.08159U	0.124U

**Table 2.10. Local surface water monitoring program results for chemical and radiological parameters – 2005 (continued)**

Location	Parameter <sup>a,b</sup>	April/May <sup>c,d</sup>	September <sup>c,d</sup>
Big Run Creek RW-2 (downstream)	americium-241	-0.09647U	0U
	neptunium-237	-0.02519U	0.08736U
	plutonium-238	0.02517U	-0.02173U
	plutonium-239/240	0.02515U	0.06532U
	technetium-99	-5.29U	3.02U
	uranium	0.6131	0.4743
	uranium-233/234	0.2044	0.2431
	uranium-235	0.02292U	0.05452U
	uranium-236	0U	0.0245U
	uranium-238	0.204	0.1544
RW-3 (downstream)	americium-241	0.1097U	0.05115U
	neptunium-237	0.00002102U	0.04655U
	plutonium-238	0.02098U	0.04644U
	plutonium-239/240	0.021U	0.04642U
	technetium-99	0.991U	-2.88U
	uranium	1.095	0.5904U
	uranium-233/234	1.15	0.7314
	uranium-235	0U	-0.03108U
	uranium-236	-0.02401U	-0.05581U
	uranium-238	0.3681	0.2014U
RW-33 (upstream)	americium-241	0.02351U	-0.04669U
	neptunium-237	0.02182U	-0.02274U
	plutonium-238	0.08702U	0.02272U
	plutonium-239/240	-0.02173U	-0.02267U
	technetium-99	-4.53U	-1.1U
	uranium	-0.06391U	0.2392U
	uranium-233/234	0.08519U	0.08044U
	uranium-235	0U	0U
	uranium-236	-0.04713U	0.02227U
	uranium-238	-0.02123U	0.08026U
Background creeks RW-10N	americium-241	0.1579U	0.09908U
	neptunium-237	0.02174U	-0.02239U
	plutonium-238	0.04331U	0.04472U
	plutonium-239/240	0.00004327U	0.00002233U
	technetium-99	-10.1U	0.968U
	uranium	0.5855	0.2427U
	uranium-233/234	0.2563	0.2859
	uranium-235	0.00002146U	0U
	uranium-236	0U	0U
	uranium-238	0.1967	0.08153U

**Table 2.10. Local surface water monitoring program results for chemical and radiological parameters – 2005 (continued)**

Location	Parameter <sup>a,b</sup>	April/May <sup>c,d</sup>	September <sup>c,d</sup>
Background creeks	americium-241	0.1147U	0.04515U
	neptunium-237	-0.02754U	0.04814U
	plutonium-238	0U	0.096U
	plutonium-239/240	0.08254U	0.048U
	technetium-99	-4.37U	-1.35U
	uranium	0.1192U	0.2092U
	uranium-233/234	0.05685U	0.09751U
	uranium-235	0.02337U	-0.03003U
	uranium-236	0.02098U	0U
	uranium-238	0.03785U	0.07297U
RW-10S	americium-241	0.08416U	0.03966U
	neptunium-237	-0.02227U	-0.07092U
	plutonium-238	0.06684U	0.0472U
	plutonium-239/240	0.04459U	0U
	technetium-99	-4.26U	5.92U
	uranium	0.1313U	0.3064U
	uranium-233/234	0.02111U	0.2679
	uranium-235	0.0259U	0U
	uranium-236	-0.0232U	0.02282U
	uranium-238	0.04192U	0.1028U
RW-10E	americium-241	0.1387U	0U
	neptunium-237	0.02213U	-0.02261U
	plutonium-238	0.06621U	0.04518U
	plutonium-239/240	0.04413U	0U
	technetium-99	-5.43U	1.73U
	uranium	0.1127U	0.1318U
	uranium-233/234	0.03786U	0.1775U
	uranium-235	0U	0U
	uranium-236	0.02095U	0U
	uranium-238	0.03775U	0.04427U
RW-10W	americium-241	0.1387U	0U
	neptunium-237	0.02213U	-0.02261U
	plutonium-238	0.06621U	0.04518U
	plutonium-239/240	0.04413U	0U
	technetium-99	-5.43U	1.73U
	uranium	0.1127U	0.1318U
	uranium-233/234	0.03786U	0.1775U
	uranium-235	0U	0U
	uranium-236	0.02095U	0U
	uranium-238	0.03775U	0.04427U

<sup>a</sup>Parameters are reported in the following units: radionuclides [americium-241, neptunium-237, plutonium isotopes, technetium-99 and uranium isotopes (not including uranium)] in pCi/L, fluoride and total phosphate as phosphorus in mg/L, and all other parameters (metals, including uranium, and PCBs) in  $\mu\text{g}/\text{L}$ .

<sup>b</sup>The derived concentration guide (DCG) for each radionuclide is as follows: americium-241, 30 pCi/L; neptunium-237, 30 pCi/L; plutonium-238, 40 pCi/L; plutonium-239/240, 30 pCi/L; technetium-99, 100,000 pCi/L; uranium-233/234, 500 pCi/L; uranium-235, 600 pCi/L; uranium-236, 500 pCi/L; uranium-238, 600 pCi/L. All results are well below these DOE standards. A DCG is not available for total uranium.

<sup>c</sup>Abbreviations and data qualifiers are as follows: \* – duplicate analysis is not within control limits; B – result is less than the practical quantitation limit but greater than or equal to the instrument detection limit; J – estimated value; N – sample spike recovery is not within control limits; U – undetected; na – not analyzed.

<sup>d</sup>Because of the statistical nature of radiation detection, results for samples that have no radioactivity are often negative values because background radioactivity is subtracted out.

**Table 2.11. Sediment monitoring program results – 2005**

Parameter	Unit	Location/results <sup>a,b</sup>			
		<i>Scioto River and outfalls that discharge to the Scioto River</i>			
		RM-6 Upstream @ Piketon	RM-1 Downstream @ Lucasville	RM-9 Outfall 012	RM-10 USEC Outfall 010/DOE Outfall 013
Aluminum	mg/kg	3920J	6650J	5190J	8130J
Americium-241	pCi/g	0.01868U	0.009984U	0.003545U	0.02504U
Antimony	mg/kg	3.68B	1.66U	1.72U	1.54U
Arsenic	mg/kg	6.48BN	14J	23J	4.8BJ
Barium	mg/kg	39.4N	85.1	56.4	66.8
Beryllium	mg/kg	0.212	0.471	0.557	0.426
Bismuth	mg/kg	3.55U	4.22U	4.35U	3.92U
Cadmium	mg/kg	0.205U	0.244U	0.251U	0.226U
Calcium	mg/kg	19400J	8210	808J	1570J
Chromium	mg/kg	6.67	9.08	12.1	11.6
Cobalt	mg/kg	3.95	8.28	9.34	6.48
Copper	mg/kg	9.46	13	11.4	10.9
Iron	mg/kg	10400	18000	21600	17300
Lead	mg/kg	9.95B	14.7B	19	14.4B
Lithium	mg/kg	5.54N	8.71	4.68	7.01
Magnesium	mg/kg	9060	5260	770	1760
Manganese	mg/kg	248	434	701	429
Mercury	mg/kg	0.049U	0.05U	0.049U	0.048NU
Molybdenum	mg/kg	2.67B	4.3	8.95	3.86
Neptunium-237	pCi/g	0.003272U	0U	0.003319U	0.000002964U
Nickel	mg/kg	10.6	18.3	24.6	11
PCB-1016	µg/g	1U	1U	1U	1U
PCB-1221	µg/g	1U	1U	1U	1U
PCB-1232	µg/g	1U	1U	1U	1U
PCB-1242	µg/g	1U	1U	1U	1U
PCB-1248	µg/g	1U	1U	1U	1U
PCB-1254	µg/g	1U	1U	1U	1U
PCB-1260	µg/g	1U	1U	1U	1U
PCB-1268	µg/g	1U	1U	1U	1U
Phosphorus	mg/kg	311	290	307	276
Plutonium-238	pCi/g	0.006526U	0.009113U	0.006623U	0.008877U
Plutonium-239/240	pCi/g	0.006525U	0U	0.00331U	0.008874U
Potassium	mg/kg	583BN	621BN	585BN	607BN
Selenium	mg/kg	2.72NU	3.23U	3.33U	3.01U
Silicon	mg/kg	86.4*J	147J	67.6J	51J
Silver	mg/kg	0.419B	0.321U	0.545B	0.427B
Sodium	mg/kg	86.4*JN	73.2JN	38.7JN	63.8JN
Technetium-99	pCi/g	-0.0699U	-0.0035U	-0.0366U	-0.0543U
Thallium	mg/kg	4.95B	1.39B	1.3U	1.17U
Tin	mg/kg	10.1	1.79B	2.88B	2.95B
Titanium	mg/kg	46.7N	40.9	71.9N	96.4N
Uranium	µg/g	2.494	3.23	2.686	3.531
Uranium-233/234	pCi/g	0.7242	1.119	1.034	0.9873
Uranium-235	pCi/g	0.04218	0.04734	0.01947	0.04497
Uranium-236	pCi/g	0.003453U	0.000003429U	0.002914U	0.0101U
Uranium-238	pCi/g	0.8344	1.081	0.9006	1.182
Vanadium	mg/kg	13	19.2	27.1	25.7
Zinc	mg/kg	44.2	70.6	78.8	68.4

**Table 2.11. Sediment monitoring program results – 2005 (continued)**

Parameter	Unit	Location/results <sup>a,b</sup>			
		<i>Little Beaver Creek</i>			
	<i>RM-12 Upstream</i>	<i>RM-11 X-230J7 Discharge</i>	<i>RM-8 Downstream @ Outfall 009 Discharge</i>	<i>RM-7 Downstream @ Confluence</i>	
Aluminum	mg/kg	3560J	3980J	5020J	4130J
Americium-241	pCi/g	0.003315U	-0.01471U	0.01032U	0.004495U
Antimony	mg/kg	1.78U	1.48U	1.81U	1.55U
Arsenic	mg/kg	9.74BJ	10.1BJ	13.2BJ	7.3BN
Barium	mg/kg	40.4	44.6	56.4	52.8N
Beryllium	mg/kg	0.397	0.439	0.449	0.394
Bismuth	mg/kg	4.51U	3.75U	4.58U	3.93U
Cadmium	mg/kg	0.26U	0.216U	0.264U	0.227U
Calcium	mg/kg	865	375	3210J	3360J
Chromium	mg/kg	7.06	8.79	18.4	10.6
Cobalt	mg/kg	9.64	10.3	10.8	7.66
Copper	mg/kg	7.24	6.82	10.7	8.25
Iron	mg/kg	15200	17600	17300	13400
Lead	mg/kg	15.7B	17.2	16.3B	12.9B
Lithium	mg/kg	6.16	5.77	7.6	6.06N
Magnesium	mg/kg	878	675	1660	1920
Manganese	mg/kg	538	464	522	413
Mercury	mg/kg	0.05U	0.048U	0.049U	0.05U
Molybdenum	mg/kg	1.3B	2.15B	6.16	3.64
Neptunium-237	pCi/g	0.002891U	0U	0.01979U	0.000005983U
Nickel	mg/kg	8.84	8.53	18.7	17.4
PCB-1016	µg/g	1U	1U	1U	1U
PCB-1221	µg/g	1U	1U	1U	1U
PCB-1232	µg/g	1U	1U	1U	1U
PCB-1242	µg/g	1U	1U	1U	1U
PCB-1248	µg/g	1U	1U	1U	1U
PCB-1254	µg/g	1U	1U	1U	1U
PCB-1260	µg/g	1U	1U	1U	1U
PCB-1268	µg/g	1U	1U	1U	1U
Phosphorus	mg/kg	167	128	203	201
Plutonium-238	pCi/g	0.01153U	0.006233U	0.009867U	0.01792U
Plutonium-239/240	pCi/g	0.008648U	-0.003113U	0.02303U	0.008957U
Potassium	mg/kg	338BN	291BN	530BN	517BN
Selenium	mg/kg	3.46U	2.87U	3.52U	3.01NU
Silicon	mg/kg	149J	99.9J	72.1J	138*J
Silver	mg/kg	0.365B	0.356B	0.353B	0.319B
Sodium	mg/kg	42.3JN	31.5BJN	86.4JN	67.2*JN
Technetium-99	pCi/g	-0.1U	4.09	5.54	8.2
Thallium	mg/kg	1.35U	1.85B	3.91B	1.18U
Tin	mg/kg	4.48B	2.47B	4.31B	1.13U
Titanium	mg/kg	39.4	36.5	47.4N	55.7N
Uranium	µg/g	2.037	2.82	4.501	4.066
Uranium-233/234	pCi/g	0.6316	1.068	4.492	4.088
Uranium-235	pCi/g	0.04068	0.03054	0.2201	0.1319
Uranium-236	pCi/g	0.002809U	0U	0.0251	0.009872U
Uranium-238	pCi/g	0.6809	0.9449	1.493	1.334
Vanadium	mg/kg	15.9	20.5	23N	16.7
Zinc	mg/kg	46.1	48.9	98.1	59.3

**Table 2.11. Sediment monitoring program results – 2005 (continued)**

Parameter	Unit	Location/results <sup>a,b</sup>	
		<i>Big Beaver Creek</i>	
		<i>RM-5</i>	<i>RM-13</i>
		<i>Upstream</i>	<i>Downstream</i>
Aluminum	mg/kg	2400J	3220J
Americium-241	pCi/g	0U	-0.003541U
Antimony	mg/kg	1.05U	1.11U
Arsenic	mg/kg	3.37BJ	1.18NU
Barium	mg/kg	30.3	30.7N
Beryllium	mg/kg	0.224	0.229
Bismuth	mg/kg	2.66U	2.83U
Cadmium	mg/kg	0.154U	0.163U
Calcium	mg/kg	2050	3390J
Chromium	mg/kg	4.88	5.81
Cobalt	mg/kg	4.77	5.01
Copper	mg/kg	5.08	5.69
Iron	mg/kg	8330	8390
Lead	mg/kg	7.31B	7.21B
Lithium	mg/kg	4.34	5.71N
Magnesium	mg/kg	1450	2000
Manganese	mg/kg	345	341
Mercury	mg/kg	0.05U	0.05U
Molybdenum	mg/kg	1.38B	1.51B
Neptunium-237	pCi/g	0.003022U	0.003169U
Nickel	mg/kg	9.37	9.59
PCB-1016	µg/g	1U	1U
PCB-1221	µg/g	1U	1U
PCB-1232	µg/g	1U	1U
PCB-1242	µg/g	1U	1U
PCB-1248	µg/g	1U	1U
PCB-1254	µg/g	1U	1U
PCB-1260	µg/g	1U	1U
PCB-1268	µg/g	1U	1U
Phosphorus	mg/kg	126	159
Plutonium-238	pCi/g	0.009042U	0.006324U
Plutonium-239/240	pCi/g	-0.003011U	0.00316U
Potassium	mg/kg	234BN	453BN
Selenium	mg/kg	2.04U	2.17NU
Silicon	mg/kg	56.2J	72.5*J
Silver	mg/kg	0.202U	0.263B
Sodium	mg/kg	35.9JN	147*JN
Technetium-99	pCi/g	0.103U	0.595
Thallium	mg/kg	0.799U	0.847U
Tin	mg/kg	0.841B	2.59B
Titanium	mg/kg	18.8	71.2N
Uranium	µg/g	2.751	2.785
Uranium-233/234	pCi/g	0.9788	1.044
Uranium-235	pCi/g	0.04257	0.05057
Uranium-236	pCi/g	0.01042U	0.003496U
Uranium-238	pCi/g	0.9204	0.9314
Vanadium	mg/kg	9.62	12.1
Zinc	mg/kg	39.1	34.2

**Table 2.11. Sediment monitoring program results – 2005 (continued)**

Parameter	Unit	Location/results <sup>a,b</sup>			
		<i>Big Run Creek</i>		<i>RM-2</i>	<i>Downstream @ Wakefield</i>
		<i>RM-33</i>	<i>Upstream</i>	<i>RM-3</i>	<i>Downstream</i>
Aluminum	mg/kg	3550J		4780J	4810J
Americium-241	pCi/g	0U		0.007187U	0.000004764U
Antimony	mg/kg	1.57U		1.57U	1.34U
Arsenic	mg/kg	10.4BJ		9.44BJ	14.9J
Barium	mg/kg	36.5		41.5N	34.4
Beryllium	mg/kg	0.518		0.376	0.572
Bismuth	mg/kg	3.97U		3.99U	3.41U
Cadmium	mg/kg	0.229U		0.23U	0.197U
Calcium	mg/kg	763		5150J	907
Chromium	mg/kg	10.4		7.44	9.35
Cobalt	mg/kg	8.72		8.54	11.6
Copper	mg/kg	10		7.29	13.2
Iron	mg/kg	20900		12500	14900
Lead	mg/kg	19.4		13B	20.9
Lithium	mg/kg	5.42		5.97	7.26
Magnesium	mg/kg	647		3160*	866
Manganese	mg/kg	191		567	127
Mercury	mg/kg	0.05U		0.05U	0.05U
Molybdenum	mg/kg	7.22		5.49	3.33
Neptunium-237	pCi/g	0.000006383U		-0.005799U	-0.003124U
Nickel	mg/kg	13.7		10.7	21.6
PCB-1016	µg/g	1U		1U	1U
PCB-1221	µg/g	1U		1U	1U
PCB-1232	µg/g	1U		1U	1U
PCB-1242	µg/g	1U		1U	1U
PCB-1248	µg/g	1U		1U	1U
PCB-1254	µg/g	1U		1U	1U
PCB-1260	µg/g	1U		1U	1U
PCB-1268	µg/g	1U		1U	1U
Phosphorus	mg/kg	248		189	225
Plutonium-238	pCi/g	-0.006361U		0.008691U	0.009368U
Plutonium-239/240	pCi/g	0.003185U		0.005792U	0U
Potassium	mg/kg	287BN		412BN	462BN
Selenium	mg/kg	3.04U		3.06U	2.61U
Silicon	mg/kg	107J		51JN	84.7J
Silver	mg/kg	0.314B		0.401B	0.259U
Sodium	mg/kg	42.9JN		111*JN	66.8JN
Technetium-99	pCi/g	0.0255U		0.271U	0.793
Thallium	mg/kg	1.19U		1.52B	1.02U
Tin	mg/kg	1.25B		5.13B	1.89B
Titanium	mg/kg	30.9		52.7N	35.4
Uranium	µg/g	3.664		3.708	3.828
Uranium-233/234	pCi/g	1.197		1.759	2.281
Uranium-235	pCi/g	0.06347		0.06631	0.08177
Uranium-236	pCi/g	0U		0.01654	0.006119U
Uranium-238	pCi/g	1.225		1.24	1.279
Vanadium	mg/kg	22		20.2	18.8
Zinc	mg/kg	69.8		52.3N	149

**Table 2.11. Sediment monitoring program results – 2005 (continued)**

Parameter	Unit	Location/results <sup>a,b</sup>			
		Background creeks			
		RM-10N North background	RM-10S South background	RM-10E East background	RM-10W West background
Aluminum	mg/kg	3300J	4420J	3390J	4140J
Americium-241	pCi/g	0.003334U	0.005971U	-0.003171U	-0.00658U
Antimony	mg/kg	1.69U	1.51U	1.43U	1.45U
Arsenic	mg/kg	5.02BJ	4.08BN	1.52NU	17N
Barium	mg/kg	42.6	48N	29.9N	32.7N
Beryllium	mg/kg	0.345	0.364	0.314	0.552
Bismuth	mg/kg	4.3U	3.82*U	3.62U	3.67U
Cadmium	mg/kg	0.248U	0.221U	0.209U	0.212U
Calcium	mg/kg	4110	3720J	1040J	841J
Chromium	mg/kg	5.66	10.7	6.54	9.41
Cobalt	mg/kg	7.86	5.24	4.24	9.38
Copper	mg/kg	8.65	7.88	3.88	12.5
Iron	mg/kg	10900	13100*	7730	18300
Lead	mg/kg	15.5B	14.9B	7.07B	14.6B
Lithium	mg/kg	5.96	8.7N	4.12N	6.79N
Magnesium	mg/kg	2600	2300	485	704
Manganese	mg/kg	462	356	152	179
Mercury	mg/kg	0.05U	0.05U	0.05U	0.05U
Molybdenum	mg/kg	2.14B	0.623U	0.59U	19
Neptunium-237	pCi/g	-0.009871U	-0.006635U	-0.009234U	-0.009333U
Nickel	mg/kg	20.9	9.26	6.75	27.1
PCB-1016	µg/g	1U	1U	1U	1U
PCB-1221	µg/g	1U	1U	1U	1U
PCB-1232	µg/g	1U	1U	1U	1U
PCB-1242	µg/g	1U	1U	1U	1U
PCB-1248	µg/g	1U	1U	1U	1U
PCB-1254	µg/g	1U	1U	1U	1U
PCB-1260	µg/g	1U	1U	1U	1U
PCB-1268	µg/g	1U	1U	1U	1U
Phosphorus	mg/kg	177	176*	138	157
Plutonium-238	pCi/g	0.003292U	0.00994U	0.003077U	0.006211U
Plutonium-239/240	pCi/g	0.00986U	0.006627U	-0.006138U	0.000003102U
Potassium	mg/kg	303BN	602BN	311BN	716N
Selenium	mg/kg	3.29U	2.93NU	2.77NU	2.81NU
Silicon	mg/kg	154J	189*J	65.4*J	161*J
Silver	mg/kg	0.327U	0.458*B	0.331*B	0.567B
Sodium	mg/kg	63JN	93.5JN	122*JN	52.9*JN
Technetium-99	pCi/g	-0.0605U	-0.0195U	-0.147U	-0.0929U
Thallium	mg/kg	1.29U	1.15U	1.09U	3.93B
Tin	mg/kg	2.35B	1.93*B	2.09B	2.07B
Titanium	mg/kg	34	40.5*N	48.4N	26.4N

**Table 2.11. Sediment monitoring program results – 2005 (continued)**

Parameter	Unit	Location/results <sup>a,b</sup>			
		Background creeks			
		RM-10N North background	RM-10S South background	RM-10E East background	RM-10W West background
Uranium	µg/g	3.267	2.741	2.435	5.498
Uranium-233/234	pCi/g	0.898	0.8251	0.8235	1.804
Uranium-235	pCi/g	0.03768	0.04183	0.02453U	0.06107
Uranium-236	pCi/g	0.01015U	-0.004169U	0.003145U	0.00914U
Uranium-238	pCi/g	1.094	0.9175	0.8161	1.842
Vanadium	mg/kg	10.8	14	12.2	34.9
Zinc	mg/kg	84.5	53.6	23.9	82

<sup>a</sup>Abbreviations and data qualifiers are as follows: \* - duplicate analysis is not within control limits; B – result is less than the practical quantitation limit but greater than or equal to the instrument detection limit; J – estimated value; N – sample spike recovery is not within control limits; U – undetected.

<sup>b</sup>Because of the statistical nature of radiation detection, results for samples that have no radioactivity are often negative values because background radioactivity is subtracted out.

**Table 2.12. Soil and vegetation monitoring at ambient air monitoring stations – 2005**

Parameter <sup>a</sup>	Location/results <sup>b,c</sup>			
	<i>A8 – On site at northwest boundary</i>		<i>T7 – On site near X-230L North Holding Pond</i>	
	Vegetation	Soil	Vegetation	Soil
Americium-241	-0.0122U	-0.01924U	0.01136U	0.008699U
Neptunium-237	-0.006239U	-0.01046U	0.000008614U	0.003436U
Plutonium-238	0.01246U	0.000003477U	0.01719U	0.003423U
Plutonium-239/240	0.006227U	-0.006952U	0.00000859U	0.0137U
Technetium-99	0.104U	-0.166U	-0.092U	-0.0779U
Uranium	0.009409U	6.162	-0.00951U	2.684
Uranium-233/234	0.003153U	1.943	0.00289U	0.9696
Uranium-235	0U	0.06683	-0.003558U	0.05132
Uranium-236	0.003489U	0.003754U	0U	0.003544U
Uranium-238	0.003143U	2.065	-0.002878U	0.8974
	<i>A10 – On site on northwest segment of Perimeter Road</i>		<i>A29 – On site at OVEC</i>	
	Vegetation	Soil	Vegetation	Soil
Americium-241	-0.01115U	0.02225U	0.005113U	0.003265U
Neptunium-237	0U	0.004013U	-0.012U	0U
Plutonium-238	0U	0.008004U	0.01801U	0.006159U
Plutonium-239/240	0U	-0.003994U	-0.01199U	0.009233U
Technetium-99	-0.0538U	-0.0135U	-0.0119U	-0.00132U
Uranium	0.008279U	2.222	0.008551U	3.087
Uranium-233/234	0.002769U	0.7267	0.000002893U	0.8392
Uranium-235	0U	0.04009	0U	0.03287
Uranium-236	0.003067U	0.003272U	-0.003204U	0.000009137U
Uranium-238	0.002766U	0.7429	0.00289U	1.034
	<i>A36 – On site at X-611 Water Treatment Plant</i>		<i>A6 – North of PORTS in Piketon</i>	
	Vegetation	Soil	Vegetation	Soil
Americium-241	0U	-0.005683U	0.000005199U	0.03019U
Neptunium-237	-0.01147U	0.005226U	0.01167U	0U
Plutonium-238	0.01145U	0.007817U	0.01745U	0.000003215U
Plutonium-239/240	-0.01144U	0.000005206U	0U	0.009653U
Technetium-99	0.0706U	0.0351U	-0.103U	0.015U
Uranium	-0.008392U	2.505	-0.008521U	2.742
Uranium-233/234	-0.002828U	0.8047	-0.002869U	0.8041
Uranium-235	0U	0.02563U	0U	0.02954
Uranium-236	0U	0.01151U	0U	0.01895
Uranium-238	-0.00282U	0.8394	-0.002863U	0.9185

**Table 2.12. Soil and vegetation monitoring at ambient air monitoring stations – 2005 (continued)**

Parameter <sup>a</sup>	Location/results <sup>b,c</sup>			
	<i>A24 – North of PORTS at Schuster Road</i>		<i>A41 - North of PORTS at Zahns Corner</i>	
	Vegetation	Soil	Vegetation	Soil
Americium-241	0U	0U	-0.006463U	-0.009256U
Neptunium-237	0.00002646U	0.003116U	0U	0.003185U
Plutonium-238	-0.01317U	0.006207U	0.01572U	0.000003173U
Plutonium-239/240	0.00001319U	0.006207U	-0.007854U	0.003176U
Technetium-99	0.00734U	-0.000666U	-0.0716U	-0.165U
Uranium	-0.00000045U	2.63	0.01601U	2.531
Uranium-233/234	-0.002869U	0.8177	0.002698U	0.8215
Uranium-235	0U	0.04132	0U	0.02348U
Uranium-236	0U	0.003099U	0U	0.007026U
Uranium-238	0U	0.8801	0.005379U	0.8483
<i>A23 – Northeastern PORTS boundary</i>		<i>A12 – Eastern PORTS boundary</i>		
	Vegetation	Soil	Vegetation	Soil
Americium-241	0.0106U	-0.02871U	0.01978U	0.000005008U
Neptunium-237	0.000006004U	0.003544U	-0.005888U	0.000002941U
Plutonium-238	0.005999U	0.01058U	0U	0.005873U
Plutonium-239/240	0.00001197U	0.01411U	0U	0.01174U
Technetium-99	0.0702U	-0.0771U	0.0327U	0.0705U
Uranium	0	2.676	0.02755U	2.491
Uranium-233/234	0.000002757U	0.8339	0.000005745U	0.8909
Uranium-235	0U	0.05561	0.007093U	0.07677
Uranium-236	0U	0.003121U	0.003184U	0.0109U
Uranium-238	0U	0.8941	0.008608U	0.8302
<i>A15 – Southeast of PORTS on Loop Road</i>		<i>A3 – Southern PORTS boundary</i>		
	Vegetation	Soil	Vegetation	Soil
Americium-241	0.000004617U	0U	0.006306U	0.01139U
Neptunium-237	0.008374U	-0.00379U	0.00001695U	0.000003129U
Plutonium-238	0.004175U	0.01138U	0.000008452U	0U
Plutonium-239/240	0U	0.01516U	0.0000169U	0.006249U
Technetium-99	-0.107U	-0.0454U	-0.0133U	-0.00999U
Uranium	0.008711U	2.749	0.00000088U	3.078
Uranium-233/234	0.00000293U	0.8197	0.0055U	0.8025
Uranium-235	0U	0.06832	0U	0.0207
Uranium-236	0U	0.008184U	0U	0.003097U
Uranium-238	0.002927U	0.9176	0U	1.033

**Table 2.12. Soil and vegetation monitoring at ambient air monitoring stations – 2005 (continued)**

Parameter <sup>a</sup>	Location/results <sup>b,c</sup>			
	<i>A9 – South of PORTS</i>		<i>A28 – Southwest of PORTS on Camp Creek Road</i>	
	Vegetation	Soil	Vegetation	Soil
Americium-241	0U	-0.004046U	0.005092U	0.007509U
Neptunium-237	-0.02333U	0U	-0.004861U	-0.003613U
Plutonium-238	0U	0.008334U	0.01947U	0.00361U
Plutonium-239/240	-0.02326U	-0.004159U	0.004867U	-0.007212U
Technetium-99	0.0186U	-0.228U	0.004U	-0.00198U
Uranium	0.001751U	1.175	0.008883U	3.068
Uranium-233/234	0.000002975U	0.3369	-0.002985U	0.9177
Uranium-235	0.003674U	0.01769U	0U	0.06182
Uranium-236	0.003299U	0.003973U	0U	0.006939U
Uranium-238	0U	0.3934	0.002985U	1.025
<i>A37 – Background station near Otway</i>				
	Vegetation	Soil		
Americium-241	-0.005423U	0.004598U		
Neptunium-237	-0.006515U	0.000007922U		
Plutonium-238	-0.00649U	0.01186U		
Plutonium-239/240	-0.01299U	0.000007899U		
Technetium-99	-0.0455U	-0.0904U		
Uranium	0.008256U	2.384		
Uranium-233/234	0.008341U	0.8538		
Uranium-235	0U	0.03551		
Uranium-236	0U	0.007088U		
Uranium-238	0.002774U	0.7978		

<sup>a</sup>All parameters are measured in pCi/g with the exception of uranium which is measured in  $\mu\text{g}/\text{g}$ .

<sup>b</sup>Abbreviations and data qualifiers are as follows: U – undetected.

<sup>c</sup>Because of the statistical nature of radiation detection, results for samples that have no radioactivity are often negative values because background radioactivity is subtracted out.

**Table 2.13. Biota (fish) monitoring program results – 2005**

Parameter	Unit	Location/type of fish/results <sup>a,b</sup>		
		<i>Scioto River (RW-1) smallmouth bass 1</i>	<i>Scioto River (RW-1) smallmouth bass 2</i>	<i>Scioto River (RW-1) white bass</i>
Americium-241	pCi/g	0.00753U	0.006585U	0U
Chromium	mg/kg	0.5B	0.27B	0.462B
Neptunium-237	pCi/g	-0.00523U	0.00345U	-0.01193U
Plutonium-238	pCi/g	0.01567U	0.006873U	0.01192U
Plutonium-239/240	pCi/g	0.005225U	0.006873U	-0.01587U
Technetium-99	pCi/g	-0.172U	-0.146U	0.134U
Total PCB	$\mu$ g/g	2U	2U	2.5U
Uranium (total)	$\mu$ g/g	0.007911U	0.008034U	0.000000587U
Uranium-233/234	pCi/g	0.005983U	0.009068U	0.003673U
Uranium-235	pCi/g	-0.003685U	-0.003721U	0U
Uranium-236	pCi/g	0U	0.003345U	0U
Uranium-238	pCi/g	0.002987U	0.003014U	0U
		<i>Little Beaver Creek (RW-8) blue gill</i>	<i>Little Beaver Creek (RW-8) rock bass</i>	
Americium-241	pCi/g	0.007319U	0.002835U	
Chromium	mg/kg	0.305B	0.208B	
Neptunium-237	pCi/g	-0.01081U	0U	
Plutonium-238	pCi/g	0.007195U	0.008997U	
Plutonium-239/240	pCi/g	0.003601U	0.005999U	
Technetium-99	pCi/g	-0.146U	-0.232U	
Total PCB	$\mu$ g/g	2U	2U	
Uranium (total)	$\mu$ g/g	0.01386U	0.01322U	
Uranium-233/234	pCi/g	0.00494U	0.004726U	
Uranium-235	pCi/g	-0.003043U	-0.002909U	
Uranium-236	pCi/g	0.000002732U	-0.002612U	
Uranium-238	pCi/g	0.004928U	0.004714U	

<sup>a</sup>Abbreviations and data qualifiers are as follows: B – result is less than the practical quantitation limit but greater than or equal to the instrument detection limit; U – undetected.

<sup>b</sup>Because of the statistical nature of radiation detection, results for samples that have no radioactivity are often negative values because background radioactivity is subtracted out.

**Table 2.14. Biota (crops) monitoring program results – 2005**

Type	Location	Tc-99 <sup>a,b,c</sup>	U	U-233/234	U-235	U-238
blackberries	Offsite 1	-0.15U	-0.01041U	0.003196U	-0.003919U	-0.003167U
blueberries	Offsite 1	-0.0918U	0.04182U	0.003444U	0.004232U	0.0137U
corn	Offsite 1	-0.0725U	0.01491U	0.002525U	0U	0.005025U
gourd	Offsite 2	-0.0937U	0.009291U	-0.009362U	0U	0.003123U
melon	Offsite 2	-0.153U	-0.00009374U	-0.005396U	0.000003332U	0U
squash	Offsite 2	-0.0492JU	0.009201U	-0.009331U	0U	0.00311U
tomatoes	Offsite 2	0.0523U	0.031U	0.006716U	0.004138U	0.01005U
corn	Offsite 3	-0.0775U	0.000001424U	0.008896U	0U	0U
green beans	Offsite 3	-0.196U	0.009036U	0.006129U	0U	0.003054U
potato	Offsite 3	-0.0301U	0.01737U	-0.005832U	0U	0.005837U
corn	Offsite 4	-0.0476U	0.01078U	0.007214U	0U	0.0036U
cucumber	Offsite 4	-0.0925U	-0.00695U	0.009393U	0U	-0.002336U
green beans	Offsite 4	-0.0682U	0.01984U	0.000006675U	0U	0.006668U
tomato	Offsite 4	-0.149U	-0.01134U	0.007649U	0U	-0.003809U
corn	Offsite 5	-0.0859U	0.009698U	0.003272U	0U	0.003259U
peppers	Offsite 5	-0.146U	-0.01134U	0.007649U	0U	-0.003809U
tomato	Offsite 5	-0.0213U	0.008901U	0.003003U	0U	0.002991U
zucchini	Offsite 5	-0.0829U	0.02877U	0.0226U	0U	0.009666U

<sup>a</sup>Results are reported in  $\mu\text{g/g}$  (uranium) and  $\text{pCi/g}$  (all other parameters). Abbreviations are as follows: Tc-99 – technetium-99, U – uranium, U-233/234 – uranium-233/234, U-235 – uranium-235, U-238 – uranium-238. Data qualifiers are as follows: J – estimated. U – undetected.

<sup>b</sup>Because of the statistical nature of radiation detection, results for samples that have no radioactivity are often negative values because background radioactivity is subtracted out.

<sup>c</sup>Samples were also analyzed for transuranic radionuclides (americium-241, neptunium-237, plutonium-238, and plutonium-239/240) and uranium-236. None of these radionuclides were detected in the samples.

**Table 2.15. Off-site dairy monitoring – 2005**

Parameter	Units	Milk <sup>a,b</sup>	Eggs
Americium-241	pCi/g	0U	0.004474U
Neptunium-237	pCi/g	-0.003372U	0.00000176U
Plutonium-238	pCi/g	0.01348U	0.001757U
Plutonium-239/240	pCi/g	0.01011U	-0.001755U
Technetium-99	pCi/g	-0.00902U	-0.0273U
Uranium	$\mu$ g/g	0.0012U	-0.0008726U
Uranium-233/234	pCi/g	0.02533	-0.004581U
Uranium-235	pCi/g	0.004465U	-0.001884U
Uranium-236	pCi/g	0U	0U
Uranium-238	pCi/g	0.000003609U	0U

<sup>a</sup>Abbreviations and data qualifiers are as follows: U – undetected.

<sup>b</sup>Because of the statistical nature of radiation detection, results for samples that have no radioactivity are often negative values because background radioactivity is subtracted out.

**Table 2.16. Surface water monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study - 2005**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>			
		<i>Big Beaver Creek</i>			
		BBC 1.3 (Aug)	BBC 1.3 (Oct)	BBC 1.8 (Aug)	BBC 1.8 (Oct)
Aluminum	µg/L	1390N	82.8B	1000N	107
Antimony	µg/L	1.9U	1.9U	1.9U	1.9U
Arsenic	µg/L	1.2U	1.2U	1.2U	1.2U
Barium	µg/L	34.7B	26B	29.2B	24.5B
Beryllium	µg/L	0.57U	0.57U	0.57U	0.57U
Cadmium	µg/L	0.27U	0.27U	0.27U	0.27U
Calcium	µg/L	21600	23700	21100	23400
Chromium	µg/L	4.1B	1.5U	4B	1.5U
Cobalt	µg/L	2.8U	2.8U	2.8U	2.8U
Copper	µg/L	2.7B	1.1U	2.6B	5.2B
Fluoride	mg/L	0.17	0.29	0.16	0.3
Iron	µg/L	1690N	133	1300N	140
Lead	µg/L	1.1U	1.1U	1.1U	2.1B
Magnesium	µg/L	17700	20100	18000	20800
Manganese	µg/L	99.2	50.7	64.7	24.7
Mercury	µg/L	0.046U	0.046U	0.046U	0.046U
Nickel	µg/L	5.8B	3.2U	5.5B	18.7B
Phosphorus (total)	µg/L	67.1	60.3	81.1	57.8
Potassium	µg/L	2570B	1500B	2050B	1700B
Selenium	µg/L	2U	2U	2U	2U
Silver	µg/L	2.6U	2.6U	2.6U	2.6U
Sodium	µg/L	14900	23000	15700	23700
Technetium-99	pCi/L	3.3	5.1	3.8	4.7
Thallium	µg/L	2.8U	2.8U	2.8U	2.8U
Vanadium	µg/L	4.2B	2.5U	3.3B	2.5U
Zinc	µg/L	21.8	5B	19.5B	122
<i>Big Beaver Creek</i>					
		BBC 2.3 (Aug)	BBC 2.3 (Oct)	BBC 5.6 (Aug)	BBC 5.6 (Oct)
Aluminum	µg/L	262N	213	111BN	48.6B
Antimony	µg/L	1.9U	1.9U	1.9U	1.9U
Arsenic	µg/L	1.2U	1.2B	2B	2.5B
Barium	µg/L	38.5B	39.3B	45.8B	73.7B
Beryllium	µg/L	0.57U	0.57U	0.57U	0.57U
Cadmium	µg/L	0.27U	0.27U	0.27U	0.27U
Calcium	µg/L	22100	23900	33400	33300
Chromium	µg/L	1.5U	1.5U	1.5U	1.5U
Cobalt	µg/L	2.8U	2.8U	2.8U	2.8U
Copper	µg/L	1.1U	1.1U	1.1U	1.1U
Fluoride	mg/L	0.17	0.3	0.14	0.25
Iron	µg/L	301N	267	7.4UN	127
Lead	µg/L	1.1U	1.1U	1.1U	1.1U
Magnesium	µg/L	20700	20700	23000	21000
Manganese	µg/L	72.4	66.8	303	453
Mercury	µg/L	0.046U	0.046U	0.046U	0.046U
Nickel	µg/L	3.2U	3.2U	3.7B	3.2U
Phosphorus (total)	µg/L	43.8B	50.3	62.5	77.8
Potassium	µg/L	2340B	3220B	961U	3780B
Selenium	µg/L	2U	3.1B	2U	2U
Silver	µg/L	2.6U	2.6U	2.6U	2.6U
Sodium	µg/L	17200	22500	58.5U	19400

**Table 2.16. Surface water monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>			
		<i>Big Beaver Creek</i>			
		BBC 2.3 (Aug)	BBC 2.3 (Oct)	BBC 5.6 (Aug)	BBC 5.6 (Oct)
Technetium-99	pCi/L	2.7U	3J	-1.1U	1.2U
Thallium	µg/L	2.8U	2.8U	2.8U	2.8U
Vanadium	µg/L	2.5U	2.5U	2.5U	2.5U
Zinc	µg/L	10.5B	8.7B	3.6B	2.9B
		<i>Big Run Creek</i>			
		BRC 4.0 (Aug)	BRC 4.0 (Oct)	BRC 4.8 (Aug)	BRC 4.8 (Oct)
Aluminum	µg/L	151BN	57.5B	156BN	66.1B
Antimony	µg/L	1.9U	1.9U	1.9U	1.9U
Arsenic	µg/L	9.5B	5.8B	13.2	7.5B
Barium	µg/L	25.5B	27.1B	23.1B	28.2B
Beryllium	µg/L	0.57U	0.57U	0.57U	0.57U
Cadmium	µg/L	0.27U	0.27U	0.34B	0.27U
Calcium	µg/L	29300	31700	29900	31500
Chromium	µg/L	1.5U	1.5U	1.5U	1.5U
Cobalt	µg/L	2.8U	2.8U	2.8U	2.8U
Copper	µg/L	1.1U	1.1U	1.1U	1.4B
Fluoride	mg/L	0.23	0.38	0.23	0.39
Iron	µg/L	278N	132	354N	494
Lead	µg/L	1.1U	1.1U	1.1U	1.1U
Magnesium	µg/L	24600	27900	25700	28200
Manganese	µg/L	91.3	44.3	71	167
Mercury	µg/L	0.046U	0.046U	0.046U	0.046U
Nickel	µg/L	3.6B	3.2U	3.2U	3.2U
Phosphorus (total)	µg/L	112	125	119	55.3
Potassium	µg/L	4210B	4180B	4350B	4990B
Selenium	µg/L	2.2B	2.4B	2U	2.3B
Silver	µg/L	2.6U	2.6U	2.6U	2.6U
Sodium	µg/L	124000	148000	129000	150000
Technetium-99	pCi/L	-0.9U	1.5U	0.3U	1.6U
Thallium	µg/L	2.8U	2.8U	2.8U	2.8U
Vanadium	µg/L	2.5U	2.5U	2.5U	2.5U
Zinc	µg/L	8.5B	7.5B	12.9B	6.6B
		<i>Little Beaver Creek</i>			
		LBC 0.1 (Aug)	LBC 0.1 (Oct)	LBC 2.4 (Aug)	LBC 2.4 (Oct)
Aluminum	µg/L	608N	91.1B	224N	52.5B
Antimony	µg/L	1.9U	1.9U	1.9U	1.9U
Arsenic	µg/L	1.2U	1.2U	1.2U	1.2U
Barium	µg/L	23B	21.2B	9.7B	12.4B
Beryllium	µg/L	0.57U	0.57U	0.57U	0.57U
Cadmium	µg/L	0.27U	0.27U	0.27U	0.27U
Calcium	µg/L	19400	23500	12400	19400
Chromium	µg/L	2.5B	1.5U	1.5U	1.5U
Cobalt	µg/L	2.8U	2.8U	2.8U	2.8U
Copper	µg/L	2.5B	1.2B	5.5B	1.9B
Fluoride	mg/L	0.16	0.3	0.12	0.29
Iron	µg/L	727N	112	270N	95.1B
Lead	µg/L	1.1U	1.1U	1.1U	1.1U
Magnesium	µg/L	16100	21200	9430	19900
Manganese	µg/L	33.1	14.4	52.9	21.9
Mercury	µg/L	0.046U	0.046U	0.046U	0.046U

**Table 2.16. Surface water monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>			
		<i>Little Beaver Creek</i>			
		LBC 0.1 (Aug)	LBC 0.1 (Oct)	LBC 2.4 (Aug)	LBC 2.4 (Oct)
Nickel	µg/L	4.9B	3.2U	5.6B	3.2U
Phosphorus (total)	µg/L	50.8	67.8	46.1B	47.8B
Potassium	µg/L	4040B	2070B	961U	1810B
Selenium	µg/L	2U	2U	2U	2U
Silver	µg/L	2.6U	2.6U	2.6U	2.6U
Sodium	µg/L	14500	23900	7980	24000
Technetium-99	pCi/L	3.1	3.9	10.2	2.3U
Thallium	µg/L	2.8U	2.8U	2.8U	2.8U
Vanadium	µg/L	2.5U	2.5U	2.5U	2.5U
Zinc	µg/L	14.5B	6.2B	31.5	9.7B
		<i>Little Beaver Creek</i>			
		LBC 3.1 (Aug)	LBC 3.1 (Oct)	LBC 3.3 (Aug)	LBC 3.3 (Oct)
Aluminum	µg/L	175BN	39.9B	2490N	672
Antimony	µg/L	1.9U	1.9U	1.9U	1.9U
Arsenic	µg/L	1.2U	1.2U	3.7B	5.5B
Barium	µg/L	8.8B	12.1B	66.3B	93.6B
Beryllium	µg/L	0.57U	0.57U	0.57U	0.57U
Cadmium	µg/L	0.27U	0.27U	0.27U	0.27U
Calcium	µg/L	12200	19300	21500	28400
Chromium	µg/L	1.5U	1.5U	3.1B	1.5U
Cobalt	µg/L	2.8U	2.8U	3.6B	3.1B
Copper	µg/L	7.6B	3B	2.8B	1.1U
Fluoride	mg/L	0.12	0.3	0.11	0.24
Iron	µg/L	187N	59.5B	3720N	2360
Lead	µg/L	1.1U	1.1U	2.1B	1.1U
Magnesium	µg/L	8840	20200	19200	26900
Manganese	µg/L	20.7	7.9B	391	4450
Mercury	µg/L	0.046U	0.046U	0.046U	0.046U
Nickel	µg/L	3.2B	3.2U	7B	4.9B
Phosphorus (total)	µg/L	62.5	110	88.2	90.3
Potassium	µg/L	961U	2020B	6230	9860
Selenium	µg/L	2U	2U	2U	2U
Silver	µg/L	2.6U	2.6U	2.6U	2.6U
Sodium	µg/L	8120	24600	16100	18800
Technetium-99	pCi/L	13.2	1.7U	-1.3U	1.1U
Thallium	µg/L	2.8U	2.8U	2.8B	2.8U
Vanadium	µg/L	2.5U	2.5U	5.8B	2.5U
Zinc	µg/L	44.7	10.6	14.6B	11.8
		<i>Scioto River</i>			
		SR 23.4 (Aug)	SR 23.4 (Oct)	SR 27.0 (Aug)	SR 27.0 (Oct)
Aluminum	µg/L	321N	571	389N	426
Antimony	µg/L	1.9U	1.9U	1.9U	1.9U
Arsenic	µg/L	2B	3.2B	1.2U	3B
Barium	µg/L	88.3B	78.4B	110B	77.9B
Beryllium	µg/L	0.57U	0.57U	0.57U	0.57U
Cadmium	µg/L	0.27U	0.27U	0.27U	0.27U
Calcium	µg/L	77400	68600	76700	69700
Chromium	µg/L	1.5U	1.7B	1.5U	1.5U
Cobalt	µg/L	2.8U	2.8U	2.8U	2.8U
Copper	µg/L	1.3B	4.5B	1.1U	2.8B

**Table 2.16. Surface water monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>			
		<i>Scioto River</i>			
		SR 23.4 (Aug)	SR 23.4 (Oct)	SR 27.0 (Aug)	SR 27.0 (Oct)
Fluoride	mg/L	0.34	0.55	0.34	0.56
Iron	µg/L	408N	730	507N	629
Lead	µg/L	1.1U	1.1U	1.1U	1.1U
Magnesium	µg/L	27300	24600	27300	25500
Manganese	µg/L	79.7	50.5	96.7	49
Mercury	µg/L	0.046U	0.046U	0.046U	0.046U
Nickel	µg/L	4.1B	4.8B	4.4B	5.2B
Phosphorus (total)	µg/L	na	na	na	na
Potassium	µg/L	5640	2820B	5090	6280
Selenium	µg/L	2U	2U	2U	2U
Silver	µg/L	2.6U	2.6U	2.6U	2.6U
Sodium	µg/L	58600	39400	61900	39700
Technetium-99	pCi/L	-0.3U	1.4U	-0.9U	1.5U
Thallium	µg/L	2.8U	2.8U	2.8U	2.8U
Vanadium	µg/L	2.5U	2.5U	2.5U	2.5U
Zinc	µg/L	7.8B	19.8	7.6B	11.6
<i>Scioto River</i>					
		SR 30.0 (Aug)	SR 30.0 (Oct)		
Aluminum	µg/L	324N	401		
Antimony	µg/L	1.9U	3.1B		
Arsenic	µg/L	2.1B	3.7B		
Barium	µg/L	86.7B	78.9B		
Beryllium	µg/L	0.57U	0.57U		
Cadmium	µg/L	0.27U	0.27U		
Calcium	µg/L	77500	72400		
Chromium	µg/L	1.5U	1.5U		
Cobalt	µg/L	2.8U	2.8U		
Copper	µg/L	1.1U	2.9B		
Fluoride	mg/L	0.34	0.55		
Iron	µg/L	7.4UN	629		
Lead	µg/L	1.1U	1.1U		
Magnesium	µg/L	27400	26600		
Manganese	µg/L	74.5	47.1		
Mercury	µg/L	0.046U	0.046U		
Nickel	µg/L	4B	7.1B		
Phosphorus (total)	µg/L	na	na		
Potassium	µg/L	961U	5830		
Selenium	µg/L	2U	2U		
Silver	µg/L	2.6U	2.6U		
Sodium	µg/L	293B	40000		
Technetium-99	pCi/L	-0.4U	0.7U		
Thallium	µg/L	4.1B	4.1B		
Vanadium	µg/L	2.5U	2.5U		
Zinc	µg/L	14.7B	13.7		

**Table 2.16. Surface water monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>			
		Big Run Creek		Little Beaver Creek	
		BRC 4.3 (Aug)	BRC 4.3 (Oct)	LBC 1.4 (Aug)	LBC 1.4 (Oct)
<i>Metals/Radionuclides</i>					
Aluminum	µg/L	129BN	49.6B	300N	55.4B
Antimony	µg/L	1.9U	1.9U	1.9U	1.9U
Arsenic	µg/L	9.3B	6.5B	1.2U	1.2U
Barium	µg/L	23.7B	26.4B	15.1B	14.7B
Beryllium	µg/L	0.57U	0.57U	0.57U	0.57U
Cadmium	µg/L	0.27U	0.27U	0.27U	0.27U
Calcium	µg/L	29800	31500	15600	21400
Chromium	µg/L	1.5U	1.5U	1.8B	1.5U
Cobalt	µg/L	2.8U	2.8U	2.8U	2.8U
Copper	µg/L	1.1U	1.1U	3.3B	1.9B
Fluoride	mg/L	0.23	0.26	0.14	0.3
Iron	µg/L	249N	148	357N	77B
Lead	µg/L	1.1U	1.4B	1.2B	1.1U
Magnesium	µg/L	25300	27800	12500	20400
Manganese	µg/L	71.2	58.7	31.7	12
Mercury	µg/L	0.046U	0.046U	0.046U	0.046U
Nickel	µg/L	3.2B	3.2U	4.6B	3.2U
Phosphorus (total)	µg/L	116	379	53.1	55.3
Potassium	µg/L	4430B	5020	3100B	3050B
Selenium	µg/L	2U	2U	2U	2.7B
Silver	µg/L	2.6U	2.6U	2.6U	2.6U
Sodium	µg/L	128000	147000	11100	24400
Technetium-99	pCi/L	-2.2U	1.07U	5	2.8J
Thallium	µg/L	2.8U	2.8U	2.8U	2.8U
Vanadium	µg/L	2.5U	2.5U	2.5U	2.5U
Zinc	µg/L	13.9B	9.6B	17.6B	7.3B
<i>Semivolatile organic compounds/PCBs</i>					
1,2,4-Trichlorobenzene	µg/L	10U	10U	10U	10U
1,2-Dichlorobenzene	µg/L	10U	10U	10U	10U
1,3-Dichlorobenzene	µg/L	10U	10U	10U	10U
1,4-Dichlorobenzene	µg/L	10U	10U	10U	10U
1-Methyl naphthalene	µg/L	na	10U	na	10U
2,4,5-Trichlorophenol	µg/L	10U	10U	10U	10U
2,4,6-Trichlorophenol	µg/L	10U	10U	10U	10U
2,4-Dichlorophenol	µg/L	10U	10U	10U	10U
2,4-Dimethylphenol	µg/L	10U	10U	10U	10U
2,4-Dinitrophenol	µg/L	50U	50U	50U	50U
2,4-Dinitrotoluene	µg/L	10U	10U	10U	10U
2,6-Dinitrotoluene	µg/L	10U	10U	10U	10U
2-Chloronaphthalene	µg/L	10U	10U	10U	10U
2-Chlorophenol	µg/L	10U	10U	10U	10U
2-Methylnaphthalene	µg/L	10U	10U	10U	10U
2-Methylphenol	µg/L	10U	10U	10U	10U
2-Nitroaniline	µg/L	50U	50U	50U	50U
2-Nitrophenol	µg/L	10U	10U	10U	10U
3,3'-Dichlorobenzidine	µg/L	50U	50U	50U	50U
3-Methylphenol &					
4-Methylphenol	µg/L	20U	10U	20U	10U
3-Nitroaniline	µg/L	50U	50U	50U	50U
4,6-Dinitro-2-methylphenol	µg/L	50U	50U	50U	50U

**Table 2.16. Surface water monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>			
		<i>Big Run Creek</i>		<i>Little Beaver Creek</i>	
		<i>BRC 4.3 (Aug)</i>	<i>BRC 4.3 (Oct)</i>	<i>LBC 1.4 (Aug)</i>	<i>LBC 1.4 (Oct)</i>
Semivolatile organic compounds/PCBs					
4-Bromophenyl phenyl ether	µg/L	10U	10U	10U	10U
4-Chloro-3-methylphenol	µg/L	10U	10U	10U	10U
4-Chloroaniline	µg/L	10U	10U	10U	10U
4-Chlorophenyl phenyl ether	µg/L	10U	10U	10U	10U
4-Nitroaniline	µg/L	50U	50U	50U	50U
4-Nitrophenol	µg/L	50U	50U	50U	50U
Acenaphthene	µg/L	10U	10U	10U	10U
Acenaphthylene	µg/L	10U	10U	10U	10U
Aniline	µg/L	10U	10U	10U	10U
Anthracene	µg/L	10U	10U	10U	10U
Atrazine	µg/L	10U	10U	10U	10U
Azobenzene	µg/L	10U	10U	10U	10U
Benzidine	µg/L	100U	100U	100U	100U
Benzo(a)anthracene	µg/L	10U	10U	10U	10U
Benzo(a)pyrene	µg/L	10U	10U	10U	10U
Benzo(b)fluoranthene	µg/L	10U	10U	10U	10U
Benzo(ghi)perylene	µg/L	10U	10U	10U	10U
Benzo(k)fluoranthene	µg/L	10U	10U	10U	10U
Benzoic acid	µg/L	50U	50U	50U	50U
Benzyl alcohol	µg/L	10U	10U	10U	10U
bis(2-Chloroethoxy) methane	µg/L	10U	10U	10U	10U
bis(2-Chloroethyl) ether	µg/L	10U	10U	10U	10U
bis(2-Chloroisopropyl) ether	µg/L	10U	10U	10U	10U
bis(2-Ethylhexyl) phthalate	µg/L	10U	10U	10U	10U
Butyl benzyl phthalate	µg/L	10U	10U	10U	10U
Carbazole	µg/L	10U	10U	10U	10U
Chrysene	µg/L	10U	10U	10U	10U
Dibenzo(a,h)anthracene	µg/L	10U	10U	10U	10U
Dibenzofuran	µg/L	10U	10U	10U	10U
Diethyl phthalate	µg/L	10U	10U	10U	10U
Dimethyl phthalate	µg/L	10U	10U	10U	10U
Di-n-butyl phthalate	µg/L	10U	10U	7J	10U
Di-n-octyl phthalate	µg/L	10U	10U	10U	10U
Fluoranthene	µg/L	10U	10U	10U	10U
Fluorene	µg/L	10U	10U	10U	10U
Hexachlorobenzene	µg/L	10U	10U	10U	10U
Hexachlorobutadiene	µg/L	10U	10U	10U	10U
Hexachlorocyclopentadiene	µg/L	50U	50U	50U	50U
Hexachloroethane	µg/L	10U	10U	10U	10U
Indeno(1,2,3-cd)pyrene	µg/L	10U	10U	10U	10U
Isophorone	µg/L	10U	10U	10U	10U
Naphthalene	µg/L	10U	10U	10U	10U
Nitrobenzene	µg/L	10U	10U	10U	10U
N-Nitrosodimethylamine	µg/L	10U	10U	10U	10U
N-Nitrosodi-n-propylamine	µg/L	10U	10U	10U	10U
N-Nitrosodiphenylamine	µg/L	10U	10U	10U	10U

**Table 2.16. Surface water monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>			
		<i>Big Run Creek</i>		<i>Little Beaver Creek</i>	
		<i>BCR 4.3 (Aug)</i>	<i>BCR 4.3 (Oct)</i>	<i>LBC 1.4 (Aug)</i>	<i>LBC 1.4 (Oct)</i>
<i>Semivolatile organic compounds/PCBs</i>					
PCB-1016	µg/L	1U	1.3U	1U	1U
PCB-1221	µg/L	1U	1.3U	1U	1U
PCB-1232	µg/L	1U	1.3U	1U	1U
PCB-1242	µg/L	1U	1.3U	1U	1U
PCB-1248	µg/L	1U	1.3U	1U	1U
PCB-1254	µg/L	1U	1.3U	1U	1U
PCB-1260	µg/L	1U	1.3U	1U	1U
PCB-1262	µg/L	1U	1.3U	1U	1U
PCB-1268	µg/L	1U	1.3U	1U	1U
PCBs (total)	µg/L	9U	12U	9U	9U
Pentachlorophenol	µg/L	50U	50U	50U	50U
Phenanthrrene	µg/L	10U	10U	10U	10U
Phenol	µg/L	10U	10U	10U	10U
Pyrene	µg/L	10U	10U	10U	10U
Pyridine	µg/L	20U	20U	20U	20U
<i>Volatile organic compounds</i>					
1,1,1,2-Tetrachloroethane	µg/L	5U	5U	5U	5U
1,1,1-Trichloroethane	µg/L	5U	5U	5U	5U
1,1,2,2-Tetrachloroethane	µg/L	5U	5U	5U	5U
1,1,2-Trichloroethane	µg/L	5U	5U	5U	5U
1,1-Dichloroethane	µg/L	5U	5U	5U	5U
1,1-Dichloroethene	µg/L	5U	5U	5U	5U
1,1-Dichloropropene	µg/L	5U	5U	5U	5U
1,2,3-Trichlorobenzene	µg/L	5U	5U	5U	5U
1,2,3-Trichloropropane	µg/L	5U	5U	5U	5U
1,2,4-Trichlorobenzene	µg/L	5U	5U	5U	5U
1,2,4-Trimethylbenzene	µg/L	5U	5U	5U	5U
1,2-Dibromo-3-chloropropane	µg/L	10U	10U	10U	10U
1,2-Dibromoethane	µg/L	5U	5U	5U	5U
1,2-Dichlorobenzene	µg/L	5U	5U	5U	5U
1,2-Dichloroethane	µg/L	5U	5U	5U	5U
1,2-Dichloropropane	µg/L	5U	5U	5U	5U
1,3,5-Trimethylbenzene	µg/L	5U	5U	5U	5U
1,3-Dichlorobenzene	µg/L	5U	5U	5U	5U
1,3-Dichloropropane	µg/L	5U	5U	5U	5U
1,4-Dichlorobenzene	µg/L	5U	5U	5U	5U
2,2-Dichloropropane	µg/L	5U	5U	5U	5U
2-Butanone	µg/L	20U	20U	20U	20U
2-Chlorotoluene	µg/L	5U	5U	5U	5U
2-Hexanone	µg/L	20U	20U	20U	20U
4-Chlorotoluene	µg/L	5U	5U	5U	5U
4-Isopropyltoluene	µg/L	5U	5U	5U	5U
4-Methyl-2-pentanone	µg/L	20U	20U	20U	20U
Acetone	µg/L	5.6JB	20U	7.5JB	20U
Acrylonitrile	µg/L	50U	50U	50U	50U
Benzene	µg/L	5U	5U	5U	5U
Bromobenzene	µg/L	5U	5U	5U	5U
Bromochloromethane	µg/L	5U	5U	5U	5U
Bromodichloromethane	µg/L	5U	5U	5U	5U

**Table 2.16. Surface water monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>			
		Big Run Creek		Little Beaver Creek	
		BRC 4.3 (Aug)	BRC 4.3 (Oct)	LBC 1.4 (Aug)	LBC 1.4 (Oct)
<i>Volatile organic compounds</i>					
Bromoform	µg/L	5U	5U	5U	5U
Bromomethane	µg/L	10U	10U	10U	10U
Carbon disulfide	µg/L	5U	5U	5U	5U
Carbon tetrachloride	µg/L	5U	5U	5U	5U
Chlorobenzene	µg/L	5U	5U	5U	5U
Chloroethane	µg/L	10U	10U	10U	10U
Chloroform	µg/L	5U	5U	5U	5U
Chloromethane	µg/L	10U	10U	10U	10U
cis-1,2-Dichloroethene	µg/L	5U	5U	5U	5U
cis-1,3-Dichloropropene	µg/L	5U	5U	5U	5U
Dibromochloromethane	µg/L	5U	5U	5U	5U
Dibromomethane	µg/L	5U	5U	5U	5U
Dichlorodifluoromethane	µg/L	10U	10U	10U	10U
Ethylbenzene	µg/L	5U	5U	5U	5U
Hexachlorobutadiene	µg/L	5U	5U	5U	5U
Isopropylbenzene	µg/L	5U	5U	5U	5U
Methyl tert-butyl ether	µg/L	5U	5U	5U	5U
Methylene chloride	µg/L	5U	5U	5U	5U
m-Xylene & p-Xylene	µg/L	5U	5U	5U	5U
Naphthalene	µg/L	5U	5U	5U	5U
n-Butylbenzene	µg/L	5U	5U	5U	5U
n-Propylbenzene	µg/L	5U	5U	5U	5U
o-Xylene	µg/L	5U	5U	5U	5U
sec-Butylbenzene	µg/L	5U	5U	5U	5U
Styrene	µg/L	5U	5U	5U	5U
tert-Butylbenzene	µg/L	5U	5U	5U	5U
Tetrachloroethene	µg/L	5U	5U	5U	5U
Toluene	µg/L	5U	5U	5U	5U
trans-1,2-Dichloroethene	µg/L	5U	5U	5U	5U
trans-1,3-Dichloropropene	µg/L	5U	5U	5U	5U
Trichloroethene	µg/L	5U	5U	5U	5U
Trichlorofluoromethane	µg/L	5U	5U	5U	5U
Vinyl chloride	µg/L	5U	5U	5U	5U
<i>Metals/Radionuclides</i>					
		West Drainage Ditch			
		WDD 1.2 (Aug)	WDD 1.2 (Oct)		
Aluminum	µg/L	3560N	55.4B		
Antimony	µg/L	1.9U	1.9U		
Arsenic	µg/L	1.2U	1.2U		
Barium	µg/L	36.7B	14.7B		
Beryllium	µg/L	0.57U	0.57U		
Cadmium	µg/L	0.27U	0.27U		
Calcium	µg/L	24400	21100		
Chromium	µg/L	4B	1.5U		
Cobalt	µg/L	2.8U	2.8U		
Copper	µg/L	4.4B	1.4B		
Fluoride	mg/L	0.13	0.29		
Iron	µg/L	3750N	76.8B		
Lead	µg/L	2.2B	1.1U		
Magnesium	µg/L	11500	20200		

**Table 2.16. Surface water monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>	
		West Drainage Ditch WDD 1.2 (Aug)	WDD 1.2 (Oct)
<i>Metals/Radionuclides</i>			
Manganese	µg/L	46.9	11.8
Mercury	µg/L	0.046U	0.046U
Nickel	µg/L	5B	3.2U
Phosphorus (total)	µg/L	71.8	105
Potassium	µg/L	2750B	3780B
Selenium	µg/L	2U	2U
Silver	µg/L	2.6U	2.6U
Sodium	µg/L	14800	23900
Technetium-99	pCi/L	0.5U	1.1U
Thallium	µg/L	2.8U	2.8U
Vanadium	µg/L	8.1B	2.5U
Zinc	µg/L	33	6.7B
<i>Semivolatile organic compounds/PCBs</i>			
1,2,4-Trichlorobenzene	µg/L	10U	10U
1,2-Dichlorobenzene	µg/L	10U	10U
1,3-Dichlorobenzene	µg/L	10U	10U
1,4-Dichlorobenzene	µg/L	10U	10U
1-Methyl naphthalene	µg/L	na	10U
2,4,5-Trichlorophenol	µg/L	10U	10U
2,4,6-Trichlorophenol	µg/L	10U	10U
2,4-Dichlorophenol	µg/L	10U	10U
2,4-Dimethylphenol	µg/L	10U	10U
2,4-Dinitrophenol	µg/L	50U	50U
2,4-Dinitrotoluene	µg/L	10U	10U
2,6-Dinitrotoluene	µg/L	10U	10U
2-Chloronaphthalene	µg/L	10U	10U
2-Chlorophenol	µg/L	10U	10U
2-Methylnaphthalene	µg/L	10U	10U
2-Methylphenol	µg/L	10U	10U
2-Nitroaniline	µg/L	50U	50U
2-Nitrophenol	µg/L	10U	10U
3,3'-Dichlorobenzidine	µg/L	50U	50U
3-Methylphenol & 4-Methylphenol	µg/L	20U	10U
3-Nitroaniline	µg/L	50U	50U
4,6-Dinitro-2-methylphenol	µg/L	50U	50U
4-Bromophenyl phenyl ether	µg/L	10U	10U
4-Chloro-3-methylphenol	µg/L	10U	10U
4-Chloroaniline	µg/L	10U	10U
4-Chlorophenyl phenyl ether	µg/L	10U	10U
4-Nitroaniline	µg/L	50U	50U
4-Nitrophenol	µg/L	50U	50U
Acenaphthene	µg/L	10U	10U
Acenaphthylene	µg/L	10U	10U
Aniline	µg/L	10U	10U
Anthracene	µg/L	10U	10U
Atrazine	µg/L	10U	10U
Azobenzene	µg/L	10U	10U

**Table 2.16. Surface water monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>	
		West Drainage Ditch	
		WDD 1.2 (Aug)	WDD 1.2 (Oct)
<i>Semivolatile organic compounds/PCBs</i>			
Benzidine	µg/L	100U	100U
Benzo(a)anthracene	µg/L	10U	10U
Benzo(a)pyrene	µg/L	10U	10U
Benzo(b)fluoranthene	µg/L	10U	10U
Benzo(ghi)perylene	µg/L	10U	10U
Benzo(k)fluoranthene	µg/L	10U	10U
Benzoic acid	µg/L	50U	50U
Benzyl alcohol	µg/L	10U	10U
bis(2-Chloroethoxy) methane	µg/L	10U	10U
bis(2-Chloroethyl) ether	µg/L	10U	10U
bis(2-Chloroisopropyl) ether	µg/L	10U	10U
bis(2-Ethylhexyl) phthalate	µg/L	10U	10U
Butyl benzyl phthalate	µg/L	10U	10U
Carbazole	µg/L	10U	10U
Chrysene	µg/L	10U	10U
Dibenzo(a,h)anthracene	µg/L	10U	10U
Dibenzofuran	µg/L	10U	10U
Diethyl phthalate	µg/L	10U	10U
Dimethyl phthalate	µg/L	10U	10U
Di-n-butyl phthalate	µg/L	6.1J	10U
Di-n-octyl phthalate	µg/L	10U	10U
Fluoranthene	µg/L	10U	10U
Fluorene	µg/L	10U	10U
Hexachlorobenzene	µg/L	10U	10U
Hexachlorobutadiene	µg/L	10U	10U
Hexachlorocyclopentadiene	µg/L	50U	50U
Hexachloroethane	µg/L	10U	10U
Indeno(1,2,3-cd)pyrene	µg/L	10U	10U
Isophorone	µg/L	10U	10U
Naphthalene	µg/L	10U	10U
Nitrobenzene	µg/L	10U	10U
N-Nitrosodimethylamine	µg/L	10U	10U
N-Nitrosodi-n-propylamine	µg/L	10U	10U
N-Nitrosodiphenylamine	µg/L	10U	10U
PCB-1016	µg/L	1U	1U
PCB-1221	µg/L	1U	1U
PCB-1232	µg/L	1U	1U
PCB-1242	µg/L	1U	1U
PCB-1248	µg/L	1U	1U
PCB-1254	µg/L	1U	1U
PCB-1260	µg/L	1U	1U
PCB-1262	µg/L	1U	1U
PCB-1268	µg/L	1U	1U
PCBs (total)	µg/L	9U	9U
Pentachlorophenol	µg/L	50U	50U
Phenanthrene	µg/L	10U	10U
Phenol	µg/L	10U	10U
Pyrene	µg/L	10U	10U
Pyridine	µg/L	20U	20U

**Table 2.16. Surface water monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>	
		West Drainage Ditch WDD 1.2 (Aug)	WDD 1.2 (Oct)
<i>Volatile organic compounds</i>			
1,1,1,2-Tetrachloroethane	µg/L	5U	5U
1,1,1-Trichloroethane	µg/L	5U	5U
1,1,2,2-Tetrachloroethane	µg/L	5U	5U
1,1,2-Trichloroethane	µg/L	5U	5U
1,1-Dichloroethane	µg/L	5U	5U
1,1-Dichloroethene	µg/L	5U	5U
1,1-Dichloropropene	µg/L	5U	5U
1,2,3-Trichlorobenzene	µg/L	5U	5U
1,2,3-Trichloropropane	µg/L	5U	5U
1,2,4-Trichlorobenzene	µg/L	5U	0.59J
1,2,4-Trimethylbenzene	µg/L	5U	5U
1,2-Dibromo-3-chloropropane	µg/L	10U	10U
1,2-Dibromoethane	µg/L	5U	5U
1,2-Dichlorobenzene	µg/L	5U	0.24J
1,2-Dichloroethane	µg/L	5U	5U
1,2-Dichloropropane	µg/L	5U	5U
1,3,5-Trimethylbenzene	µg/L	5U	5U
1,3-Dichlorobenzene	µg/L	5U	5U
1,3-Dichloropropane	µg/L	5U	5U
1,4-Dichlorobenzene	µg/L	5U	5U
2,2-Dichloropropane	µg/L	5U	5U
2-Butanone	µg/L	20U	20U
2-Chlorotoluene	µg/L	5U	5U
2-Hexanone	µg/L	20U	20U
4-Chlorotoluene	µg/L	5U	5U
4-Isopropyltoluene	µg/L	5U	5U
4-Methyl-2-pentanone	µg/L	20U	20U
Acetone	µg/L	6JB	20U
Acrylonitrile	µg/L	50U	50U
Benzene	µg/L	5U	5U
Bromobenzene	µg/L	5U	5U
Bromochloromethane	µg/L	5U	5U
Bromodichloromethane	µg/L	5U	5U
Bromoform	µg/L	5U	5U
Bromomethane	µg/L	10U	10U
Carbon disulfide	µg/L	5U	5U
Carbon tetrachloride	µg/L	5U	5U
Chlorobenzene	µg/L	5U	5U
Chloroethane	µg/L	10U	10U
Chloroform	µg/L	5U	5U
Chloromethane	µg/L	10U	10U
cis-1,2-Dichloroethene	µg/L	5U	5U
cis-1,3-Dichloropropene	µg/L	5U	5U
Dibromochloromethane	µg/L	5U	5U
Dibromomethane	µg/L	5U	5U
Dichlorodifluoromethane	µg/L	10U	10U
Ethylbenzene	µg/L	5U	5U
Hexachlorobutadiene	µg/L	5U	5U
Isopropylbenzene	µg/L	5U	5U

**Table 2.16. Surface water monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>	
		West Drainage Ditch WDD 1.2 (Aug)	WDD 1.2 (Oct)
<i>Volatile organic compounds</i>			
Methyl tert-butyl ether	µg/L	5U	5U
Methylene chloride	µg/L	5U	5U
m-Xylene & p-Xylene	µg/L	5U	5U
Naphthalene	µg/L	5U	5U
n-Butylbenzene	µg/L	5U	5U
n-Propylbenzene	µg/L	5U	5U
o-Xylene	µg/L	5U	5U
sec-Butylbenzene	µg/L	5U	5U
Styrene	µg/L	5U	5U
tert-Butylbenzene	µg/L	5U	5U
Tetrachloroethene	µg/L	5U	5U
Toluene	µg/L	5U	0.55J
trans-1,2-Dichloroethene	µg/L	5U	5U
trans-1,3-Dichloropropene	µg/L	5U	5U
Trichloroethene	µg/L	5U	5U
Trichlorofluoromethane	µg/L	5U	5U
Vinyl chloride	µg/L	5U	5U

<sup>a</sup>Locations are indicated by the stream abbreviation and river mile. BBC – Big Beaver Creek; BRC – Big Run Creek; LBC – Little Beaver Creek; SR – Scioto River; WDD – West Drainage Ditch.

<sup>b</sup>Abbreviations and data qualifiers are as follows: B – Metals: result is less than the practical quantitation limit but greater than or equal to the instrument detection limit; B – volatile organic compounds: the analyte was detected in the laboratory blank sample; J – estimated value; N – sample spike recovery is not within control limits; U – undetected; na – not analyzed.

<sup>c</sup>Because of the statistical nature of radiation detection, results for samples that have no radioactivity are often negative values because background radioactivity is subtracted out.

**Table 2.17. Sediment monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study - 2005**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>				
		BBC 1.3	BBC 1.8	BBC 2.3	BBC 2.3 <sup>d</sup>	BBC 5.6
<i>Metals/Radionuclides</i>						
Aluminum	mg/kg	2600N	2540N	2500N	2920N	2760N
Antimony	mg/kg	0.25BN	0.13BN	0.12UN	0.12UN	0.25BN
Arsenic	mg/kg	5.2	5.6	4.1	4.6	5.9
Barium	mg/kg	36.4	27.9	35.8	37.4	37
Beryllium	mg/kg	0.34B	0.35B	0.31B	0.34B	0.35B
Cadmium	mg/kg	0.17UN	0.17UN	0.17UN	0.17UN	0.17U
Calcium	mg/kg	5470N	9750N	3130N	3040N	1920N
Chromium	mg/kg	5.3N	5.7N	4.2N	4.9N	4.9
Cobalt	mg/kg	6	6.1	5.9	6.6	6.3
Copper	mg/kg	6.5N	7.5N	5.9N	6.7N	4.6
Fluoride	mg/kg	1U	1U	1U	1U	1U
Iron	mg/kg	9660N	10100N	8860N	9840N	9670N
Lead	mg/kg	5.9	6.6	5.5	6.4	6.1
Magnesium	mg/kg	2610	5040	1920	2010	946
Manganese	mg/kg	382NE	210NE	249NE	226NE	222
Mercury	mg/kg	0.022B	0.025B	0.022B	0.02B	0.0072U
Nickel	mg/kg	11.1	11.9	9.9	11.9	9.1
Potassium	mg/kg	284B	192B	289B	472	168B
Selenium	mg/kg	0.29B	0.23U	0.23U	0.23U	0.23U
Silver	mg/kg	0.31U	0.31U	0.31U	0.31U	0.31U
Sodium	mg/kg	18.9B	25.2B	24.8B	18.9B	33.8B
Technetium-99	pCi/g	6.22	4.55	0.15U	0.4J	-0.38U
Thallium	mg/kg	1.1	1	0.79B	1.4	4B
Vanadium	mg/kg	9.6N	10.1N	9.3N	10.7N	10.8
Zinc	mg/kg	38.4N	40.3N	29.8N	35.4N	27.6
<i>Semivolatile organic compounds/PCBs</i>						
1,2,4-Trichlorobenzene	µg/kg	330U	330U	330U	330U	330U
1,2-Dichlorobenzene	µg/kg	330U	330U	330U	330U	330U
1,3-Dichlorobenzene	µg/kg	330U	330U	330U	330U	330U
1,4-Dichlorobenzene	µg/kg	330U	330U	330U	330U	330U
1-Methyl naphthalene	µg/kg	330U	330U	330U	330U	330U
2,4,5-Trichlorophenol	µg/kg	330U	330U	330U	330U	330U
2,4,6-Trichlorophenol	µg/kg	330U	330U	330U	330U	330U
2,4-Dichlorophenol	µg/kg	330U	330U	330U	330U	330U
2,4-Dimethylphenol	µg/kg	330U	330U	330U	330U	330U
2,4-Dinitrophenol	µg/kg	1600U	1600U	1600U	1600U	1600U
2,4-Dinitrotoluene	µg/kg	330U	330U	330U	330U	330U
2,6-Dinitrotoluene	µg/kg	330U	330U	330U	330U	330U
2-Chloronaphthalene	µg/kg	330U	330U	330U	330U	330U
2-Chlorophenol	µg/kg	330U	330U	330U	330U	330U
2-Methylnaphthalene	µg/kg	330U	330U	330U	330U	330U
2-Methylphenol	µg/kg	330U	330U	330U	330U	330U
2-Nitroaniline	µg/kg	1600U	1600U	1600U	1600U	1600U
2-Nitrophenol	µg/kg	330U	330U	330U	330U	330U
3,3'-Dichlorobenzidine	µg/kg	1600U	1600U	1600U	1600U	1600U
3-Methylphenol &						
4-Methylphenol	µg/kg	660U	660U	660U	660U	660U
3-Nitroaniline	µg/kg	1600U	1600U	1600U	1600U	1600U
4,6-Dinitro-2-methylphenol	µg/kg	1600U	1600U	1600U	1600U	1600U
4-Bromophenyl phenyl ether	µg/kg	330U	330U	330U	330U	330U

**Table 2.17. Sediment monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>				
		<i>Big Beaver Creek</i>				
Semivolatile organic compounds/PCBs		BBC 1.3	BBC 1.8	BBC 2.3	BBC 2.3 <sup>d</sup>	BBC 5.6
4-Chloro-3-methylphenol	µg/kg	330U	330U	330U	330U	330U
4-Chloroaniline	µg/kg	330U	330U	330U	330U	330U
4-Chlorophenyl phenyl ether	µg/kg	330U	330U	330U	330U	330U
4-Nitroaniline	µg/kg	1600U	1600U	1600U	1600U	1600U
4-Nitrophenol	µg/kg	1600U	1600U	1600U	1600U	1600U
Acenaphthene	µg/kg	330U	330U	330U	330U	330U
Acenaphthylene	µg/kg	330U	330U	330U	330U	330U
Aniline	µg/kg	330U	330U	330U	330U	330U
Anthracene	µg/kg	330U	330U	330U	330U	330U
Atrazine	µg/kg	330U	330U	330U	330U	330U
Azobenzene	µg/kg	330U	330U	330U	330U	330U
Benzidine	µg/kg	330U	330U	330U	330U	330U
Benzo(a)anthracene	µg/kg	330U	330U	330U	330U	330U
Benzo(a)pyrene	µg/kg	330U	330U	330U	330U	330U
Benzo(b)fluoranthene	µg/kg	330U	330U	330U	330U	330U
Benzo(ghi)perylene	µg/kg	330U	330U	330U	330U	330U
Benzo(k)fluoranthene	µg/kg	330U	330U	330U	330U	330U
Benzoic acid	µg/kg	1600U	1600U	1600U	1600U	1600U
Benzyl alcohol	µg/kg	330U	330U	330U	330U	330U
bis(2-Chloroethoxy) methane	µg/kg	330U	330U	330U	330U	330U
bis(2-Chloroethyl) ether	µg/kg	330U	330U	330U	330U	330U
bis(2-Chloroisopropyl) ether	µg/kg	330U	330U	330U	330U	330U
bis(2-Ethylhexyl) phthalate	µg/kg	330U	330U	330U	330U	330U
Butyl benzyl phthalate	µg/kg	330U	330U	330U	330U	330U
Carbazole	µg/kg	330U	330U	330U	330U	330U
Chrysene	µg/kg	330U	330U	330U	330U	330U
Dibenzo(a,h)anthracene	µg/kg	330U	330U	330U	330U	330U
Dibenzofuran	µg/kg	330U	330U	330U	330U	330U
Diethyl phthalate	µg/kg	330U	330U	330U	330U	330U
Dimethyl phthalate	µg/kg	330U	330U	330U	330U	330U
Di-n-butyl phthalate	µg/kg	330U	330U	330U	330U	330U
Di-n-octyl phthalate	µg/kg	330U	330U	330U	330U	330U
Fluoranthene	µg/kg	330U	74J	330U	330U	330U
Fluorene	µg/kg	330U	330U	330U	330U	330U
Hexachlorobenzene	µg/kg	330U	330U	330U	330U	330U
Hexachlorobutadiene	µg/kg	330U	330U	330U	330U	330U
Hexachlorocyclopentadiene	µg/kg	1600U	1600U	1600U	1600U	1600U
Hexachloroethane	µg/kg	330U	330U	330U	330U	330U
Indeno(1,2,3-cd)pyrene	µg/kg	330U	330U	330U	330U	330U
Isophorone	µg/kg	330U	330U	330U	330U	330U
Naphthalene	µg/kg	330U	330U	330U	330U	330U
Nitrobenzene	µg/kg	330U	330U	330U	330U	330U
N-Nitrosodimethylamine	µg/kg	330U	330U	330U	330U	330U
N-Nitrosodi-n-propylamine	µg/kg	330U	330U	330U	330U	330U
N-Nitrosodiphenylamine	µg/kg	330U	330U	330U	330U	330U
PCB-1016	µg/kg	33U	33U	33U	33U	33U
PCB-1221	µg/kg	33U	33U	33U	33U	33U
PCB-1232	µg/kg	33U	33U	33U	33U	33U
PCB-1242	µg/kg	33U	33U	33U	33U	33U
PCB-1248	µg/kg	33U	33U	33U	33U	33U

**Table 2.17. Sediment monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>				
		BBC 1.3	BBC 1.8	BBC 2.3	BBC 2.3 <sup>d</sup>	BBC 5.6
PCB-1254	µg/kg	33U	33U	33U	33U	33U
PCB-1260	µg/kg	33U	33U	33U	33U	33U
PCB-1262	µg/kg	33U	33U	33U	33U	33U
PCB-1268	µg/kg	33U	33U	33U	33U	33U
PCBs (total)	µg/kg	300U	300U	300U	300U	300U
Pentachlorophenol	µg/kg	1600U	1600U	1600U	1600U	1600U
Phenanthrene	µg/kg	330U	80J	330U	330U	330U
Phenol	µg/kg	330U	330U	330U	330U	330U
Pyrene	µg/kg	330U	69J	330U	330U	330U
Pyridine	µg/kg	660U	660U	660U	660U	660U
<i>Big Run Creek</i>						
<i>Metals/Radionuclides</i>		<i>BRC 4.0</i>	<i>BRC 4.8</i>	<i>LBC 0.1</i>	<i>LBC 2.4</i>	<i>LBC 3.1</i>
Aluminum	mg/kg	3120N	3000N	2970N	3410N	2610N
Antimony	mg/kg	0.34BN	0.32BN	0.14BN	0.3BN	0.43BN
Arsenic	mg/kg	15.4	19.2	8.2	18.3	11.8
Barium	mg/kg	32.3	28.8	32.4	31	27.2
Beryllium	mg/kg	0.64	0.6	0.48B	0.73	0.53
Cadmium	mg/kg	0.17UN	0.17UN	0.32BN	0.23BN	0.17UN
Calcium	mg/kg	1370N	2750N	2720N	1390N	1590N
Chromium	mg/kg	9.3N	8.8N	10.3N	17.4N	9.4N
Cobalt	mg/kg	13.6	10	8.3	13.1	10.6
Copper	mg/kg	8.9N	15.1N	9.5N	20.5N	18.2N
Fluoride	mg/kg	1U	1U	1U	1U	1U
Iron	mg/kg	15400N	17000N	15500N	24300N	19500N
Lead	mg/kg	12.1	10.6	9	13.9	11.2
Magnesium	mg/kg	861	1720	1820	965	958
Manganese	mg/kg	382NE	290NE	337NE	467NE	349NE
Mercury	mg/kg	0.021B	0.032B	0.027B	0.055	0.036
Nickel	mg/kg	13.4	11.1	20	27.1	9.9
Potassium	mg/kg	156U	178B	353	310	156U
Selenium	mg/kg	0.64	0.86	0.23U	0.68	0.35B
Silver	mg/kg	0.31U	0.31U	0.31U	0.31U	0.31U
Sodium	mg/kg	114B	120B	27B	36.1B	24.7B
Technetium-99	pCi/g	0.58U	3.18	17.2	21.8	8.45
Thallium	mg/kg	1.8	2.3	1.7	2.5	1.7
Vanadium	mg/kg	19N	16.2N	13.8N	22.1N	18.5N
Zinc	mg/kg	59N	93.2N	75.4N	175N	84.6N
<i>Semivolatile organic compounds/PCBs</i>						
1,2,4-Trichlorobenzene	µg/kg	330U	330U	330U	330U	330U
1,2-Dichlorobenzene	µg/kg	330U	330U	330U	330U	330U
1,3-Dichlorobenzene	µg/kg	330U	330U	330U	330U	330U
1,4-Dichlorobenzene	µg/kg	330U	330U	330U	330U	330U
1-Methyl naphthalene	µg/kg	330U	330U	330U	330U	330U
2,4,5-Trichlorophenol	µg/kg	330U	330U	330U	330U	330U
2,4,6-Trichlorophenol	µg/kg	330U	330U	330U	330U	330U
2,4-Dichlorophenol	µg/kg	330U	330U	330U	330U	330U
2,4-Dimethylphenol	µg/kg	330U	330U	330U	330U	330U
2,4-Dinitrophenol	µg/kg	1600U	1600U	1600U	1600U	1600U
2,4-Dinitrotoluene	µg/kg	330U	330U	330U	330U	330U
2,6-Dinitrotoluene	µg/kg	330U	330U	330U	330U	330U

**Table 2.17. Sediment monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>			
		<i>Big Run Creek</i>	<i>BRC 4.0</i>	<i>BRC 4.8</i>	<i>LBC 0.1</i>
Semivolatile organic compounds/PCBs					
2-Chloronaphthalene	µg/kg	330U	330U	330U	330U
2-Chlorophenol	µg/kg	330U	330U	330U	330U
2-Methylnaphthalene	µg/kg	330U	330U	330U	330U
2-Methylphenol	µg/kg	330U	330U	330U	330U
2-Nitroaniline	µg/kg	1600U	1600U	1600U	1600U
2-Nitrophenol	µg/kg	330U	330U	330U	330U
3,3'-Dichlorobenzidine	µg/kg	1600U	1600U	1600U	1600U
3-Methylphenol &					
4-Methylphenol	µg/kg	660U	660U	660U	660U
3-Nitroaniline	µg/kg	1600U	1600U	1600U	1600U
4,6-Dinitro-2-methylphenol	µg/kg	1600U	1600U	1600U	1600U
4-Bromophenyl phenyl ether	µg/kg	330U	330U	330U	330U
4-Chloro-3-methylphenol	µg/kg	330U	330U	330U	330U
4-Chloroaniline	µg/kg	330U	330U	330U	330U
4-Chlorophenyl phenyl ether	µg/kg	330U	330U	330U	330U
4-Nitroaniline	µg/kg	1600U	1600U	1600U	1600U
4-Nitrophenol	µg/kg	1600U	1600U	1600U	1600U
Acenaphthene	µg/kg	330U	330U	330U	330U
Acenaphthylene	µg/kg	330U	330U	330U	330U
Aniline	µg/kg	330U	330U	330U	330U
Anthracene	µg/kg	330U	330U	330U	120J
Atrazine	µg/kg	330U	330U	330U	330U
Azobenzene	µg/kg	330U	330U	330U	330U
Benzidine	µg/kg	330U	330U	330U	330U
Benzo(a)anthracene	µg/kg	330U	330U	330U	290J
Benzo(a)pyrene	µg/kg	330U	330U	330U	210J
Benzo(b)fluoranthene	µg/kg	330U	330U	330U	210J
Benzo(ghi)perylene	µg/kg	330U	330U	330U	110J
Benzo(k)fluoranthene	µg/kg	330U	330U	330U	210J
Benzoic acid	µg/kg	1600U	1600U	1600U	1600U
Benzyl alcohol	µg/kg	330U	330U	330U	330U
bis(2-Chloroethoxy) methane	µg/kg	330U	330U	330U	330U
bis(2-Chloroethyl) ether	µg/kg	330U	330U	330U	330U
bis(2-Chloroisopropyl) ether	µg/kg	330U	330U	330U	330U
bis(2-Ethylhexyl) phthalate	µg/kg	330U	330U	330U	330U
Butyl benzyl phthalate	µg/kg	330U	330U	330U	330U
Carbazole	µg/kg	330U	330U	330U	83J
Chrysene	µg/kg	330U	330U	67J	320J
Dibeno(a,h)anthracene	µg/kg	330U	330U	330U	330U
Dibenzofuran	µg/kg	330U	330U	330U	330U
Diethyl phthalate	µg/kg	330U	330U	330U	330U
Dimethyl phthalate	µg/kg	330U	330U	330U	330U
Di-n-butyl phthalate	µg/kg	330U	330U	330U	330U
Di-n-octyl phthalate	µg/kg	330U	330U	330U	330U
Fluoranthene	µg/kg	330U	330U	140J	630
Fluorene	µg/kg	330U	330U	330U	74J
Hexachlorobenzene	µg/kg	330U	330U	330U	330U
Hexachlorobutadiene	µg/kg	330U	330U	330U	330U
Hexachlorocyclopentadiene	µg/kg	1600U	1600U	1600U	1600U
Hexachloroethane	µg/kg	330U	330U	330U	330U

**Table 2.17. Sediment monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>				
		<i>Big Run Creek</i>		<i>Little Beaver Creek</i>		
		<i>BRC 4.0</i>	<i>BRC 4.8</i>	<i>LBC 0.1</i>	<i>LBC 2.4</i>	<i>LBC 3.1</i>
<i>Semivolatile organic compounds/PCBs</i>						
Indeno(1,2,3-cd)pyrene	µg/kg	330U	330U	330U	130J	330U
Isophorone	µg/kg	330U	330U	330U	330U	330U
Naphthalene	µg/kg	330U	330U	330U	330U	330U
Nitrobenzene	µg/kg	330U	330U	330U	330U	330U
N-Nitrosodimethylamine	µg/kg	330U	330U	330U	330U	330U
N-Nitrosodi-n-propylamine	µg/kg	330U	330U	330U	330U	330U
N-Nitrosodiphenylamine	µg/kg	330U	330U	330U	330U	330U
PCB-1016	µg/kg	33U	33U	33U	33U	33U
PCB-1221	µg/kg	33U	33U	33U	33U	33U
PCB-1232	µg/kg	33U	33U	33U	33U	33U
PCB-1242	µg/kg	33U	33U	33U	33U	33U
PCB-1248	µg/kg	33U	33U	33U	33U	33U
PCB-1254	µg/kg	33U	33U	33U	33U	33U
PCB-1260	µg/kg	33U	33U	33U	33U	33U
PCB-1262	µg/kg	33U	33U	33U	33U	33U
PCB-1268	µg/kg	33U	33U	33U	33U	33U
PCBs (total)	µg/kg	300U	300U	300U	300U	300U
Pentachlorophenol	µg/kg	1600U	1600U	1600U	1600U	1600U
Phenanthrene	µg/kg	330U	330U	130J	630	120J
Phenol	µg/kg	330U	330U	330U	330U	330U
Pyrene	µg/kg	330U	330U	130J	640	170J
Pyridine	µg/kg	660U	660U	660U	660U	660U
<i>Scioto River</i>						
<i>Metals/Radionuclides</i>						
		<i>SR 23.4</i>	<i>SR 27.0</i>	<i>SR 30.0</i>		
Aluminum	mg/kg	2620N	3750N	3640N		
Antimony	mg/kg	0.21BN	0.23BN	0.12UN		
Arsenic	mg/kg	5.3	6.6	6.4		
Barium	mg/kg	34.2	51	51.1		
Beryllium	mg/kg	0.25B	0.39B	0.36B		
Cadmium	mg/kg	0.17U	0.17U	0.17U		
Calcium	mg/kg	27100N	25700N	24300N		
Chromium	mg/kg	4.9	6.2	6.7		
Cobalt	mg/kg	3.9B	5.2	4.7B		
Copper	mg/kg	7.3	9.9	10.9		
Fluoride	mg/kg	1U	1U	1U		
Iron	mg/kg	8720N	11200N	11600N		
Lead	mg/kg	6.3	8.6	10		
Magnesium	mg/kg	9500	9170	8910		
Manganese	mg/kg	255	336	338		
Mercury	mg/kg	0.0072U	0.0072U	0.0073B		
Nickel	mg/kg	9.3	12.2	11.4		
Potassium	mg/kg	340B	409B	667		
Selenium	mg/kg	0.23U	0.23U	0.23U		
Silver	mg/kg	0.31U	0.31U	0.31U		
Sodium	mg/kg	40.5B	51.7B	52.6B		
Technetium-99	pCi/g	0.13U	-0.27U	-0.23U		
Thallium	mg/kg	3B	3.6B	3.8B		
Vanadium	mg/kg	9.1	11.8	10.5		
Zinc	mg/kg	39.1	50.7	56.7		

**Table 2.17. Sediment monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>		
		<i>Scioto River</i>		
<i>Semivolatile organic compounds/PCBs</i>		<i>SR 23.4</i>	<i>SR 27.0</i>	<i>SR 30.0</i>
1,2,4-Trichlorobenzene	µg/kg	330U	330U	330U
1,2-Dichlorobenzene	µg/kg	330U	330U	330U
1,3-Dichlorobenzene	µg/kg	330U	330U	330U
1,4-Dichlorobenzene	µg/kg	330U	330U	330U
1-Methyl naphthalene	µg/kg	330U	330U	330U
2,4,5-Trichlorophenol	µg/kg	330U	330U	330U
2,4,6-Trichlorophenol	µg/kg	330U	330U	330U
2,4-Dichlorophenol	µg/kg	330U	330U	330U
2,4-Dimethylphenol	µg/kg	330U	330U	330U
2,4-Dinitrophenol	µg/kg	1600U	1600U	1600U
2,4-Dinitrotoluene	µg/kg	330U	330U	330U
2,6-Dinitrotoluene	µg/kg	330U	330U	330U
2-Chloronaphthalene	µg/kg	330U	330U	330U
2-Chlorophenol	µg/kg	330U	330U	330U
2-Methylnaphthalene	µg/kg	330U	330U	330U
2-Methylphenol	µg/kg	330U	330U	330U
2-Nitroaniline	µg/kg	1600U	1600U	1600U
2-Nitrophenol	µg/kg	330U	330U	330U
3,3'-Dichlorobenzidine	µg/kg	1600U	1600U	1600U
3-Methylphenol &				
4-Methylphenol	µg/kg	660U	660U	660U
3-Nitroaniline	µg/kg	1600U	1600U	1600U
4,6-Dinitro-2-methylphenol	µg/kg	1600U	1600U	1600U
4-Bromophenyl phenyl ether	µg/kg	330U	330U	330U
4-Chloro-3-methylphenol	µg/kg	330U	330U	330U
4-Chloroaniline	µg/kg	330U	330U	330U
4-Chlorophenyl phenyl ether	µg/kg	330U	330U	330U
4-Nitroaniline	µg/kg	1600U	1600U	1600U
4-Nitrophenol	µg/kg	1600U	1600U	1600U
Acenaphthene	µg/kg	330U	330U	330U
Acenaphthylene	µg/kg	330U	330U	330U
Aniline	µg/kg	330U	330U	330U
Anthracene	µg/kg	330U	330U	330U
Atrazine	µg/kg	330U	330U	330U
Azobenzene	µg/kg	330U	330U	330U
Benzidine	µg/kg	330U	330U	330U
Benzo(a)anthracene	µg/kg	330U	330U	85J
Benzo(a)pyrene	µg/kg	330U	330U	96J
Benzo(b)fluoranthene	µg/kg	330U	76J	120J
Benzo(ghi)perylene	µg/kg	330U	330U	91J
Benzo(k)fluoranthene	µg/kg	330U	330U	100J
Benzoic acid	µg/kg	170J	1600U	1600U
Benzyl alcohol	µg/kg	330U	330U	330U
bis(2-Chloroethoxy) methane	µg/kg	330U	330U	330U
bis(2-Chloroethyl) ether	µg/kg	330U	330U	330U
bis(2-Chloroisopropyl) ether	µg/kg	330U	330U	330U
bis(2-Ethylhexyl) phthalate	µg/kg	330U	330U	86J
Butyl benzyl phthalate	µg/kg	330U	330U	330U
Carbazole	µg/kg	330U	330U	330U
Chrysene	µg/kg	330U	70J	130J

**Table 2.17. Sediment monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>		
<i>Scioto River</i>				
Semivolatile organic compounds/PCBs	SR 23.4	SR 27.0	SR 30.0	
Dibenzo(a,h)anthracene	µg/kg	330U	330U	330U
Dibenzofuran	µg/kg	330U	330U	330U
Diethyl phthalate	µg/kg	330U	330U	330U
Dimethyl phthalate	µg/kg	330U	330U	330U
Di-n-butyl phthalate	µg/kg	330U	330U	330U
Di-n-octyl phthalate	µg/kg	330U	330U	330U
Fluoranthene	µg/kg	76J	100J	190J
Fluorene	µg/kg	330U	330U	330U
Hexachlorobenzene	µg/kg	330U	330U	330U
Hexachlorobutadiene	µg/kg	330U	330U	330U
Hexachlorocyclopentadiene	µg/kg	1600U	1600U	1600U
Hexachloroethane	µg/kg	330U	330U	330U
Indeno(1,2,3-cd)pyrene	µg/kg	330U	330U	98J
Isophorone	µg/kg	330U	330U	330U
Naphthalene	µg/kg	330U	330U	330U
Nitrobenzene	µg/kg	330U	330U	330U
N-Nitrosodimethylamine	µg/kg	330U	330U	330U
N-Nitrosodi-n-propylamine	µg/kg	330U	330U	330U
N-Nitrosodiphenylamine	µg/kg	330U	330U	330U
PCB-1016	µg/kg	33U	33U	33U
PCB-1221	µg/kg	33U	33U	33U
PCB-1232	µg/kg	33U	33U	33U
PCB-1242	µg/kg	33U	33U	33U
PCB-1248	µg/kg	33U	33U	33U
PCB-1254	µg/kg	33U	33U	33U
PCB-1260	µg/kg	33U	33U	33U
PCB-1262	µg/kg	33U	33U	33U
PCB-1268	µg/kg	33U	33U	33U
PCBs (total)	µg/kg	300U	300U	300U
Pentachlorophenol	µg/kg	1600U	1600U	1600U
Phenanthrene	µg/kg	330U	330U	88J
Phenol	µg/kg	330U	330U	330U
Pyrene	µg/kg	68J	100J	180J
Pyridine	µg/kg	660U	660U	660U
<i>Big Run Creek/ Little Beaver Creek</i>				
<i>West Drainage Ditch</i>				
Metals/Radionuclides		BRC 4.3	LBC 1.4	
Aluminum	mg/kg	3870N	3270N	2720N
Antimony	mg/kg	0.66BN	0.26BN	0.12UN
Arsenic	mg/kg	34	11.3	7.3
Barium	mg/kg	40.3	41.3	32.3
Beryllium	mg/kg	1.1	0.56	0.34B
Cadmium	mg/kg	0.17UN	0.18BN	0.17UN
Calcium	mg/kg	2380N	4910N	2640N
Chromium	mg/kg	13.8N	15.2N	5.8N
Cobalt	mg/kg	17.6	10.5	6.1
Copper	mg/kg	12.1N	14.1N	8.4N
Fluoride	mg/kg	1U	1U	1U
Iron	mg/kg	31700N	18100N	11200N
Lead	mg/kg	19.6	10.5	8.1

**Table 2.17. Sediment monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a/result</sup> <sup>b,c</sup>			
		<i>Big Run Creek/ Little Beaver Creek</i>		<i>West Drainage Ditch</i>	
		<i>BRC 4.3</i>	<i>LBC 1.4</i>	<i>WDD 1.2</i>	<i>WDD 1.2<sup>d</sup></i>
<i>Metals/Radionuclides</i>					
Magnesium	mg/kg	1410	2480	1670	2090
Manganese	mg/kg	1220NE	422NE	223NE	218NE
Mercury	mg/kg	0.023B	0.051	0.019B	0.023B
Nickel	mg/kg	15.3	21.5	9.7	10
Potassium	mg/kg	156U	161B	167B	236B
Selenium	mg/kg	0.68	0.23U	0.23U	0.45B
Silver	mg/kg	0.31U	0.31U	0.31U	0.31U
Sodium	mg/kg	119B	24.3B	32.9B	27.2B
Technetium-99	pCi/g	2.2	11.2	0.68J	0.56J
Thallium	mg/kg	2.8	1.6	1.5	1.5
Vanadium	mg/kg	35.8N	17.9N	10.6N	10.8N
Zinc	mg/kg	94.6N	106N	72.8N	75.9N
<i>Semivolatile organic compounds/PCBs</i>					
1,2,4-Trichlorobenzene	µg/kg	330U	330U	330U	330U
1,2-Dichlorobenzene	µg/kg	330U	330U	330U	330U
1,3-Dichlorobenzene	µg/kg	330U	330U	330U	330U
1,4-Dichlorobenzene	µg/kg	330U	330U	330U	330U
1-Methyl naphthalene	µg/kg	330U	330U	330U	330U
2,4,5-Trichlorophenol	µg/kg	330U	330U	330U	330U
2,4,6-Trichlorophenol	µg/kg	330U	330U	330U	330U
2,4-Dichlorophenol	µg/kg	330U	330U	330U	330U
2,4-Dimethylphenol	µg/kg	330U	330U	330U	330U
2,4-Dinitrophenol	µg/kg	1600U	1600U	1600U	1600U
2,4-Dinitrotoluene	µg/kg	330U	330U	330U	330U
2,6-Dinitrotoluene	µg/kg	330U	330U	330U	330U
2-Chloronaphthalene	µg/kg	330U	330U	330U	330U
2-Chlorophenol	µg/kg	330U	330U	330U	330U
2-Methylnaphthalene	µg/kg	330U	330U	330U	330U
2-Methylphenol	µg/kg	330U	330U	330U	330U
2-Nitroaniline	µg/kg	1600U	1600U	1600U	1600U
2-Nitrophenol	µg/kg	330U	330U	330U	330U
3,3'-Dichlorobenzidine	µg/kg	1600U	1600U	1600U	1600U
3-Methylphenol &					
4-Methylphenol	µg/kg	660U	660U	660U	660U
3-Nitroaniline	µg/kg	1600U	1600U	1600U	1600U
4,6-Dinitro-2-methylphenol	µg/kg	1600U	1600U	1600U	1600U
4-Bromophenyl phenyl ether	µg/kg	330U	330U	330U	330U
4-Chloro-3-methylphenol	µg/kg	330U	330U	330U	330U
4-Chloroaniline	µg/kg	330U	330U	330U	330U
4-Chlorophenyl phenyl ether	µg/kg	330U	330U	330U	330U
4-Nitroaniline	µg/kg	1600U	1600U	1600U	1600U
4-Nitrophenol	µg/kg	1600U	1600U	1600U	1600U
Acenaphthene	µg/kg	330U	330U	330U	330U
Acenaphthylene	µg/kg	330U	330U	330U	330U
Aniline	µg/kg	330U	330U	330U	330U
Anthracene	µg/kg	330U	330U	330U	330U
Atrazine	µg/kg	330U	330U	330U	330U
Azobenzene	µg/kg	330U	330U	330U	330U

**Table 2.17. Sediment monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>			
		<i>Big Run Creek/ Little Beaver Creek</i>		<i>West Drainage Ditch</i>	
Semivolatile organic compounds/PCBs		BRC 4.3	LBC 1.4	WDD 1.2	WDD 1.2 <sup>d</sup>
Benzidine	µg/kg	330U	330U	330U	330U
Benzo(a)anthracene	µg/kg	330U	120J	110J	330U
Benzo(a)pyrene	µg/kg	330U	87J	92J	330U
Benzo(b)fluoranthene	µg/kg	330U	92J	100J	330U
Benzo(ghi)perylene	µg/kg	330U	330U	330U	330U
Benzo(k)fluoranthene	µg/kg	330U	78J	88J	330U
Benzoic acid	µg/kg	1600U	1600U	1600U	1600U
Benzyl alcohol	µg/kg	330U	330U	330U	330U
bis(2-Chloroethoxy) methane	µg/kg	330U	330U	330U	330U
bis(2-Chloroethyl) ether	µg/kg	330U	330U	330U	330U
bis(2-Chloroisopropyl) ether	µg/kg	330U	330U	330U	330U
bis(2-Ethylhexyl) phthalate	µg/kg	330U	330U	330U	330U
Butyl benzyl phthalate	µg/kg	330U	330U	330U	330U
Carbazole	µg/kg	330U	330U	330U	330U
Chrysene	µg/kg	330U	130J	120J	330U
Dibenzo(a,h)anthracene	µg/kg	330U	330U	330U	330U
Dibenzofuran	µg/kg	330U	330U	330U	330U
Diethyl phthalate	µg/kg	330U	330U	330U	330U
Dimethyl phthalate	µg/kg	330U	330U	330U	330U
Di-n-butyl phthalate	µg/kg	330U	330U	330U	330U
Di-n-octyl phthalate	µg/kg	330U	330U	330U	330U
Fluoranthene	µg/kg	330U	260J	250J	130J
Fluorene	µg/kg	330U	330U	330U	330U
Hexachlorobenzene	µg/kg	330U	330U	330U	330U
Hexachlorobutadiene	µg/kg	330U	330U	330U	330U
Hexachlorocyclopentadiene	µg/kg	1600U	1600U	1600U	1600U
Hexachloroethane	µg/kg	330U	330U	330U	330U
Indeno(1,2,3-cd)pyrene	µg/kg	330U	330U	330U	330U
Isophorone	µg/kg	330U	330U	330U	330U
Naphthalene	µg/kg	330U	330U	330U	330U
Nitrobenzene	µg/kg	330U	330U	330U	330U
N-Nitrosodimethylamine	µg/kg	330U	330U	330U	330U
N-Nitrosodi-n-propylamine	µg/kg	330U	330U	330U	330U
N-Nitrosodiphenylamine	µg/kg	330U	330U	330U	330U
PCB-1016	µg/kg	33U	33U	33U	33U
PCB-1221	µg/kg	33U	33U	33U	33U
PCB-1232	µg/kg	33U	33U	33U	33U
PCB-1242	µg/kg	33U	33U	33U	33U
PCB-1248	µg/kg	33U	33U	33U	33U
PCB-1254	µg/kg	33U	33U	33U	33U
PCB-1260	µg/kg	33U	33U	33U	33U
PCB-1262	µg/kg	33U	33U	33U	33U
PCB-1268	µg/kg	33U	33U	33U	33U
PCBs (total)	µg/kg	300U	300U	300U	300U
Pentachlorophenol	µg/kg	1600U	1600U	1600U	1600U
Phenanthrene	µg/kg	330U	250J	200J	90J
Phenol	µg/kg	330U	330U	330U	330U
Pyrene	µg/kg	330U	270J	250J	120J
Pyridine	µg/kg	660U	660U	660U	660U

**Table 2.17. Sediment monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a/result</sup> <sup>b,c</sup>			
		<i>Big Run Creek/ Little Beaver Creek</i>		<i>West Drainage Ditch</i>	
		<i>BR/C 4.3</i>	<i>LBC 1.4</i>	<i>WDD 1.2</i>	<i>WDD 1.2<sup>d</sup></i>
<i>Volatile organic compounds</i>					
1,1,1,2-Tetrachloroethane	µg/kg	5U	5U	5U	5U
1,1,1-Trichloroethane	µg/kg	5U	5U	5U	5U
1,1,2,2-Tetrachloroethane	µg/kg	5U	5U	5U	5U
1,1,2-Trichloroethane	µg/kg	5U	5U	5U	5U
1,1-Dichloroethane	µg/kg	5U	5U	5U	5U
1,1-Dichloroethene	µg/kg	5U	5U	5U	5U
1,1-Dichloropropene	µg/kg	5U	5U	5U	5U
1,2,3-Trichlorobenzene	µg/kg	5U	5U	5U	5U
1,2,3-Trichloropropane	µg/kg	5U	5U	5U	5U
1,2,4-Trichlorobenzene	µg/kg	1.1J	5U	5U	5U
1,2,4-Trimethylbenzene	µg/kg	5U	5U	5U	5U
1,2-Dibromo-3-chloropropane	µg/kg	10U	10U	10U	10U
1,2-Dibromoethane	µg/kg	5U	5U	5U	5U
1,2-Dichlorobenzene	µg/kg	0.41J	5U	5U	5U
1,2-Dichloroethane	µg/kg	5U	5U	5U	5U
1,2-Dichloropropane	µg/kg	5U	5U	5U	5U
1,3,5-Trimethylbenzene	µg/kg	5U	5U	5U	5U
1,3-Dichlorobenzene	µg/kg	5U	5U	5U	5U
1,3-Dichloropropane	µg/kg	5U	5U	5U	5U
1,4-Dichlorobenzene	µg/kg	1.4J	1J	0.66J	0.64J
2,2-Dichloropropane	µg/kg	5U	5U	5U	5U
2-Butanone	µg/kg	20U	4.6J	5.3J	7.7J
2-Chlorotoluene	µg/kg	5U	5U	5U	5U
2-Hexanone	µg/kg	20U	20U	20U	20U
4-Chlorotoluene	µg/kg	5U	5U	5U	5U
4-Isopropyltoluene	µg/kg	5U	0.62J	5U	5U
4-Methyl-2-pentanone	µg/kg	20U	20U	20U	20U
Acetone	µg/kg	12JB	17JB	27B	40B
Acrylonitrile	µg/kg	50U	50U	50U	50U
Benzene	µg/kg	5U	5U	5U	5U
Bromobenzene	µg/kg	5U	0.5J	5U	5U
Bromochloromethane	µg/kg	5U	5U	5U	5U
Bromodichloromethane	µg/kg	5U	5U	5U	5U
Bromoform	µg/kg	5U	5U	5U	5U
Bromomethane	µg/kg	10U	10U	10U	10U
Carbon disulfide	µg/kg	0.47J	0.44J	0.44J	0.45J
Carbon tetrachloride	µg/kg	5U	5U	5U	5U
Chlorobenzene	µg/kg	5U	5U	5U	5U
Chloroethane	µg/kg	10U	10U	10U	10U
Chloroform	µg/kg	5U	5U	5U	5U
Chloromethane	µg/kg	10U	10U	10U	10U
cis-1,2-Dichloroethene	µg/kg	5U	5U	5U	5U
cis-1,3-Dichloropropene	µg/kg	5U	5U	5U	5U
Dibromochloromethane	µg/kg	5U	5U	5U	5U
Dibromomethane	µg/kg	5U	5U	5U	5U
Dichlorodifluoromethane	µg/kg	10U	10U	10U	10U
Ethylbenzene	µg/kg	5U	5U	5U	5U

**Table 2.17. Sediment monitoring conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /result <sup>b,c</sup>			
		<i>Big Run Creek/ Little Beaver Creek</i>		<i>West Drainage Ditch</i>	
		BRC 4.3	LBC 1.4	WDD 1.2	WDD 1.2 <sup>d</sup>
<i>Volatile organic compounds</i>					
Hexachlorobutadiene	µg/kg	5U	5U	5U	5U
Isopropylbenzene	µg/kg	5U	5U	5U	5U
Methyl tert-butyl ether (MTBE)	µg/kg	5U	5U	5U	5U
Methylene chloride	µg/kg	9.6	8.5	4.6J	6.6
m-Xylene & p-Xylene	µg/kg	5U	5U	5U	5U
Naphthalene	µg/kg	2J	4.2J	5U	5U
n-Butylbenzene	µg/kg	5U	5U	5U	5U
n-Propylbenzene	µg/kg	5U	5U	5U	5U
o-Xylene	µg/kg	5U	5U	5U	5U
sec-Butylbenzene	µg/kg	5U	5U	5U	5U
Styrene	µg/kg	0.6JB	0.67JB	5U	5U
tert-Butylbenzene	µg/kg	5U	5U	5U	5U
Tetrachloroethene	µg/kg	5U	5U	5U	5U
Toluene	µg/kg	5U	0.81J	5U	5U
trans-1,2-Dichloroethene	µg/kg	5U	5U	5U	5U
trans-1,3-Dichloropropene	µg/kg	5U	5U	5U	5U
Trichloroethene	µg/kg	5U	5U	5U	5U
Trichlorofluoromethane	µg/kg	5U	5U	5U	5U
Vinyl chloride	µg/kg	5U	5U	5U	5U

<sup>a</sup>Locations are indicated by the stream abbreviation and river mile. BBC – Big Beaver Creek; BRC – Big Run Creek; LBC – Little Beaver Creek; SR – Scioto River; WDD – West Drainage Ditch.

<sup>b</sup>Abbreviations and data qualifiers are as follows: B – result is less than the practical quantitation limit but greater than or equal to the instrument detection limit; E – the reported value is estimated because of the presence of interferences. J – estimated value; N – sample spike recovery is not within control limits; U – undetected.

<sup>c</sup>Because of the statistical nature of radiation detection, results for samples that have no radioactivity are often negative values because background radioactivity is subtracted out.

<sup>d</sup>Duplicate sample.

**Table 2.18. Fish sampling conducted by DOE in conjunction with  
Ohio EPA Biological and Water Quality Study – 2005**

Parameter	Unit	Location <sup>a</sup> /type of fish and sample <sup>a</sup> /result <sup>b,c</sup>				
		BBC 1.3 <i>Longear/ spotted bass</i> WBC	BBC 1.8 <i>Blue gill WBC</i>	BBC 1.8 <i>Golden red horse</i> WBC	BBC 1.8 <i>Quillback carpsucker</i> SOFC	BBC 2.3 <i>Common carp</i> SOFC
Arsenic	mg/kg	0.1B	0.28B	0.092U	0.092U	0.21B
Cadmium	mg/kg	0.17U	0.17U	0.17U	0.17U	0.17U
Lead	mg/kg	0.15U	0.15U	0.15U	0.15U	0.15U
Lipids	%	1.1	4.3	1.5	0.098	0.45
Mercury	mg/kg	0.091	0.028B	0.03B	0.15	0.12N
PCB-1016	µg/kg	33U	33U	33U	33U	33U
PCB-1221	µg/kg	33U	33U	33U	33U	33U
PCB-1232	µg/kg	33U	33U	33U	33U	33U
PCB-1242	µg/kg	33U	79	33U	33U	33U
PCB-1248	µg/kg	82	33U	33U	33U	33U
PCB-1254	µg/kg	77	68	140	33U	33U
PCB-1260	µg/kg	49	33U	190	33U	33U
PCB-1262	µg/kg	33U	33U	33U	33U	33U
PCB-1268	µg/kg	33U	33U	33U	33U	33U
PCBs (total)	µg/kg	210J	150J	320	300U	300U
Selenium	mg/kg	0.77	0.67	0.86	0.53	0.61
Technetium-99	pCi/g	0.9U	0.4U	0.7U	0.8U	2.9U
<i>Big Beaver Creek</i>						
		BBC 2.3 <i>Small mouth/ green sunfish/ longear</i> WBC	BBC 5.6 <i>Green sunfish/ rock bass</i> WBC	BBC 5.6 <i>Hogsucker</i> WBC	BBC 5.6 <i>Longear</i> WBC	BBC 5.6 <i>Spotted bass</i> SOFC
Arsenic	mg/kg	0.23B	0.15B	0.18B	0.14B	0.22B
Cadmium	mg/kg	0.17U	0.17U	0.17U	0.17U	0.17U
Lead	mg/kg	0.15U	0.15U	0.15U	0.15U	0.17B
Lipids	%	0.56	0.43	0.34	0.7	0.22
Mercury	mg/kg	0.074N	0.088	0.042	0.099	0.38
PCB-1016	µg/kg	33U	33U	33U	33U	33U
PCB-1221	µg/kg	33U	33U	33U	33U	33U
PCB-1232	µg/kg	33U	33U	33U	33U	33U
PCB-1242	µg/kg	33U	33U	33U	33U	33U
PCB-1248	µg/kg	33U	33U	33U	33U	33U
PCB-1254	µg/kg	33U	33U	37	33U	33U
PCB-1260	µg/kg	33U	33U	46	33U	33U
PCB-1262	µg/kg	33U	33U	33U	33U	33U
PCB-1268	µg/kg	33U	33U	33U	33U	33U
PCBs (total)	µg/kg	300U	300U	83J	300U	300U
Selenium	mg/kg	0.46B	0.35B	0.39B	0.4B	0.41B
Technetium-99	pCi/g	1.2U	-0.3U	0.08U	1.4U	-0.19U

**Table 2.18. Fish sampling conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /type of fish and sample <sup>a</sup> /result <sup>b,c</sup>				
		<i>Big Run Creek</i>				
		BRC 4.0 <i>Creek chub</i> WBC	BRC 4.3 <i>Creek chub</i> WBC	BRC 4.3 <i>Green sunfish</i> WBC	BRC 4.8 <i>Creek chub</i> WBC	BRC 4.8 <i>Green sunfish</i> WBC
Arsenic	mg/kg	0.12B	0.15B	0.092U	0.45B	0.92B
Cadmium	mg/kg	0.17U	0.17U	0.17U	0.17U	0.17U
Lead	mg/kg	0.15U	0.15U	0.15U	0.21B	0.15U
Lipids	%	0.61	0.51	2.8	0.068	0.4
Mercury	mg/kg	0.049	0.046	0.033B	0.04N	0.039N
PCB-1016	µg/kg	33U	33U	130U	33U	33U
PCB-1221	µg/kg	33U	33U	130U	33U	33U
PCB-1232	µg/kg	33U	33U	130U	33U	33U
PCB-1242	µg/kg	33U	33U	130U	33U	33U
PCB-1248	µg/kg	33U	33U	130U	33U	33U
PCB-1254	µg/kg	67	91	250D	33U	46
PCB-1260	µg/kg	74	95	220D	33U	41
PCB-1262	µg/kg	33U	33U	130U	33U	33U
PCB-1268	µg/kg	33U	33U	130U	33U	33U
PCBs (total)	µg/kg	140J	190J	470D	300U	88J
Selenium	mg/kg	0.53	1.3	1.5	1.4	1
Technetium-99	pCi/g	1.4U	-3.75U	na	2.7J	na
		<i>Little Beaver Creek</i>				
		LBC 0.1 <i>Hogsucker</i> WBC	LBC 0.1 <i>Rock bass/</i> <i>longear/green</i> <i>sunfish</i> WBC	LBC 1.4 <i>Creek chub</i> WBC	LBC 1.4 <i>Rock bass/</i> <i>green</i> <i>sunfish</i> WBC	LBC 1.4 <i>Spotted</i> <i>bass</i> SOFC
Arsenic	mg/kg	0.24B	0.2B	0.1B	0.17B	0.22B
Cadmium	mg/kg	0.17U	0.17U	0.17U	0.17U	0.17U
Lead	mg/kg	0.15U	0.15U	0.15U	0.15U	0.15U
Lipids	%	0.37	0.91	0.39	0.52	0.29
Mercury	mg/kg	0.042N	0.063N	0.047	0.058	0.092N
PCB-1016	µg/kg	33U	33U	33U	33U	33U
PCB-1221	µg/kg	33U	33U	33U	33U	33U
PCB-1232	µg/kg	33U	33U	33U	33U	33U
PCB-1242	µg/kg	33U	33U	33U	33U	33U
PCB-1248	µg/kg	33U	33U	33U	33U	33U
PCB-1254	µg/kg	88	92	100	130	90
PCB-1260	µg/kg	150	140	350	360	160
PCB-1262	µg/kg	33U	33U	33U	33U	33U
PCB-1268	µg/kg	33U	33U	33U	33U	33U
PCBs (total)	µg/kg	240J	230J	450	490	250J
Selenium	mg/kg	0.6	0.5	0.58	0.77	0.54
Technetium-99	pCi/g	1.7U	1.2U	-0.06U	0.9U	2.8J

**Table 2.18. Fish sampling conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /type of fish and sample <sup>a</sup> /result <sup>b,c</sup>				
		<i>Little Beaver Creek</i>				
		LBC 2.4 <i>Creek chub</i> WBC	LBC 2.4 <i>Green sunfish</i> WBC	LBC 2.4 <i>Yellow bullhead</i> WBC	LBC 3.1 <i>Creek chub</i> WBC	LBC 3.1 <i>Green sunfish</i> WBC
Arsenic	mg/kg	0.21B	0.2B	0.092U	0.14B	0.2B
Cadmium	mg/kg	0.17U	0.17U	0.17U	0.17U	0.17U
Lead	mg/kg	0.15U	0.15U	0.15U	0.15U	0.15U
Lipids	%	0.17	0.71	1.7	0.31	0.39
Mercury	mg/kg	0.08	0.061	0.082	0.075	0.071
PCB-1016	µg/kg	33U	33U	33U	33U	33U
PCB-1221	µg/kg	33U	33U	33U	33U	33U
PCB-1232	µg/kg	33U	33U	33U	33U	33U
PCB-1242	µg/kg	33U	33U	33U	33U	33U
PCB-1248	µg/kg	33U	33U	33U	33U	33U
PCB-1254	µg/kg	61	97	240	110	90
PCB-1260	µg/kg	130	120	580	130	92
PCB-1262	µg/kg	33U	33U	33U	33U	33U
PCB-1268	µg/kg	33U	33U	33U	33U	33U
PCBs (total)	µg/kg	200J	210J	820	230J	180J
Selenium	mg/kg	0.43B	0.63	0.37B	0.32B	0.54
Technetium-99	pCi/g	1U	0.9U	0.8U	1.3U	0.9U
<i>Little Beaver Creek</i>						
		LBC 3.3 <i>Creek chub</i> WBC	LBC 3.3 <i>Green sunfish</i> WBC		WDD 1.2 <i>Creek chub</i> WBC	WDD 1.2 <i>Longear sunfish</i> WBC
Arsenic	mg/kg	0.28B	0.097B		0.092U	0.16B
Cadmium	mg/kg	0.17U	0.17U		0.17U	0.17U
Lead	mg/kg	0.15U	0.15U		0.15U	0.15U
Lipids	%	0.45	0.59		0.9	0.56
Mercury	mg/kg	0.051	0.07		0.082	0.051
PCB-1016	µg/kg	33U	42U		33U	33U
PCB-1221	µg/kg	33U	42U		33U	33U
PCB-1232	µg/kg	33U	42U		33U	33U
PCB-1242	µg/kg	33U	42U		33U	33U
PCB-1248	µg/kg	33U	42U		33U	33U
PCB-1254	µg/kg	33U	42U		33U	33U
PCB-1260	µg/kg	33U	42U		240	250
PCB-1262	µg/kg	33U	42U		33U	33U
PCB-1268	µg/kg	33U	42U		33U	33U
PCBs (total)	µg/kg	300U	380U		240J	250J
Selenium	mg/kg	0.3B	0.56		0.43B	0.59
Technetium-99	pCi/g	0.09U	0.4U		2.1U	1.5U
<i>West Drainage Ditch</i>						

**Table 2.18. Fish sampling conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /type of fish and sample <sup>a</sup> /result <sup>b,c</sup>				
		<i>Scioto River</i>				
		<i>SR 24.6</i> <i>Freshwater</i> <i>drum</i> <i>SOFC</i>	<i>SR 24.6</i> <i>White bass</i> <i>WBC</i>	<i>SR 27.0</i> <i>Channel</i> <i>catfish</i> <i>SFFC</i>	<i>SR 27.0</i> <i>Freshwater</i> <i>drum</i> <i>SOFC</i>	<i>SR 27.0</i> <i>White bass</i> <i>WBC</i>
Arsenic	mg/kg	0.17B	0.41B	0.092U	0.15B	0.28B
Cadmium	mg/kg	0.17U	0.17U	0.17U	0.17U	0.17U
Lead	mg/kg	0.15U	0.15U	0.16B	0.15U	0.15U
Lipids	%	1.5	0.82	0.32	0.24	0.67
Mercury	mg/kg	0.35N	0.044N	0.081N	0.38N	0.059N
PCB-1016	µg/kg	33U	33U	33U	33U	33U
PCB-1221	µg/kg	33U	33U	33U	33U	33U
PCB-1232	µg/kg	33U	33U	33U	33U	33U
PCB-1242	µg/kg	33U	33U	33U	33U	33U
PCB-1248	µg/kg	33U	48	33U	66	70
PCB-1254	µg/kg	33U	89	33U	66	58
PCB-1260	µg/kg	33U	50	33U	45	33U
PCB-1262	µg/kg	33U	33U	33U	33U	33U
PCB-1268	µg/kg	33U	33U	33U	33U	33U
PCBs (total)	µg/kg	300U	190J	300U	180J	130J
Selenium	mg/kg	0.49B	0.49B	0.23U	0.51	0.46B
Technetium-99	pCi/g	2J	2.5J	3.4J	1.5U	2.8J

**Table 2.18. Fish sampling conducted by DOE in conjunction with Ohio EPA Biological and Water Quality Study – 2005 (continued)**

Parameter	Unit	Location <sup>a</sup> /type of fish and sample <sup>a</sup> /result <sup>b,c</sup>	Scioto River		
		SR 29.0 Channel catfish SFFC	SR 29.0 Freshwater drum SOFC	SR 29.0 White bass WBC	
Arsenic	mg/kg	0.11B	0.19B	0.24B	
Cadmium	mg/kg	0.17U	0.17U	0.17U	
Lead	mg/kg	0.15U	0.15U	0.15U	
Lipids	%	0.52	1	0.6	
Mercury	mg/kg	0.11N	0.14N	0.08N	
PCB-1016	µg/kg	33U	33U	33U	
PCB-1221	µg/kg	33U	33U	33U	
PCB-1232	µg/kg	33U	33U	33U	
PCB-1242	µg/kg	33U	33U	33U	
PCB-1248	µg/kg	33U	75	56	
PCB-1254	µg/kg	38	57	90	
PCB-1260	µg/kg	33U	33U	93	
PCB-1262	µg/kg	33U	33U	33U	
PCB-1268	µg/kg	33U	33U	33U	
PCBs (total)	µg/kg	38J	130J	240J	
Selenium	mg/kg	0.23U	0.76	0.69	
Technetium-99	pCi/g	1.8U	1.6U	3.2U	

<sup>a</sup>Locations are indicated by the stream abbreviation and river mile. BBC – Big Beaver Creek; BRC – Big Run Creek; LBC – Little Beaver Creek; SR – Scioto River; WDD – West Drainage Ditch. Type of sample is as follows: WBC – whole body composite; SFCC – skin-off fillet composite; SOFC – skin-on fillet composite.

<sup>b</sup>Abbreviations and data qualifiers are as follows: B – result is less than the practical quantitation limit but greater than or equal to the instrument detection limit; J – estimated value; N – sample spike recovery is not within control limits; U – undetected; na – not analyzed.

<sup>c</sup>Because of the statistical nature of radiation detection, results for samples that have no radioactivity are often negative values because background radioactivity is subtracted out.

### 3. DOSE

This section provides summary tables for dose calculations completed for the PORTS site. Information is provided for the dose calculation required by the National Emission Standards for Hazardous Air Pollutants for airborne radionuclide emissions. The following tables are provided in this section:

- Table 3.1. Emissions (Ci/year) from DOE PORTS air emission sources – 2005
- Table 3.2. Predicted radiation doses from airborne releases at PORTS – 2005
- Table 3.3. Dose calculations for ambient air monitoring stations – 2005

**Table 3.1. Emissions (Ci/year) from DOE PORTS air emission sources – 2005**

Radionuclide	X-622 GWTF <sup>a, b</sup> Air stripper	X-622 GWTF <sup>a, b</sup> Clarifier	X-623 GWTF <sup>a, b</sup>	X-624 GWTF <sup>a, b</sup>	X-627 GWTF <sup>a, b</sup>
Americium-241	8.9E-08	4.5E-08	7.9E-07	3.0E-06	2.3E-07
Neptunium-237	3.7E-08	6.6E-09	7.7E-07	4.5E-06	5.0E-07
Plutonium-238	3.9E-08	1.3E-08	5.0E-07	2.1E-06	1.3E-07
Plutonium-239/240	2.5E-08	6.8E-09	4.4E-07	2.7E-06	7.5E-08
Technetium-99	9.1E-07	8.6E-08	4.0E-05	1.4E-04	1.4E-07
Uranium-233/234	-	-	1.1E-06	4.2E-06	1.4E-06
Uranium-234	2.6E-05	1.8E-06	-	-	-
Uranium-235/236	-	-	-	-	1.5E-07
Uranium-235	6.0E-08	4.0E-09	2.5E-07	1.5E-06	-
Uranium-236	-	-	3.3E-07	1.5E-06	-
Uranium-238	1.7E-07	1.2E-08	5.2E-07	2.1E-06	5.9E-07
Total	2.8E-05	2.0E-06	4.4E-05	1.6E-04	3.2E-06

GWTF – groundwater treatment facility.

<sup>a</sup>Measurements are provided in scientific notation. The number and sign (+ or -) to the right of the “E” indicate the number of places to the right or left of the decimal point. For example, 3.4E-04 is 0.00034 (the decimal point moves four places to the left); 2.1E+02 is 210 (the decimal point moves two places to the right).

<sup>b</sup>Emissions are based on the results of the most recent air emissions testing completed for each facility (2004 for X-627, 2002 for X-622, and 2001 for X-623 and X-624). The highest emissions of each nuclide were assumed to be emitted from each facility during each hour of operation for the facility in 2005. For radionuclides that were not detected in emissions testing, half the maximum detection limit for the radionuclide was used to calculate emissions of the radionuclide.

**Table 3.2. Predicted radiation doses from airborne releases at PORTS – 2005**

Effective dose equivalent to:	DOE releases	All PORTS releases (DOE and USEC)
Maximally exposed individual (mrem/year)	0.0096	0.012
Population <sup>a</sup> (person-rem/year)	0.030	0.043
Nearest community <sup>b</sup> (person-rem/year)	0.0062	0.0064

<sup>a</sup>Population within 50 miles (80 km) of plant site.<sup>b</sup>Piketon, Ohio [for modeling purposes assumed to be 2 miles (3500 m) north of the plant site].**Table 3.3. Dose calculations for ambient air monitoring stations – 2005**

Station	Parameter <sup>a</sup>	Dose <sup>b</sup> (mrem/year)	Total dose for station <sup>c</sup>	Net dose for station <sup>d</sup>
A3	Americium-241	8.3E-10		
	Neptunium-237	7.7E-10		
	Plutonium-238	1.4E-09		
	Plutonium-239/240	5.6E-10		
	Technetium-99	4.8E-05		
	<b>Uranium-233/234</b>	3.0E-07		
	<b>Uranium-235</b>	1.1E-08		
	Uranium-236	1.6E-09	(0.000048)	
	<b>Uranium-238</b>	3.0E-07	4.8E-05	0
A6	Americium-241	8.5E-10		
	Neptunium-237	5.8E-10		
	Plutonium-238	6.2E-09		
	Plutonium-239/240	7.4E-10		
	Technetium-99	1.3E-04		
	<b>Uranium-233/234</b>	2.2E-07		
	Uranium-235	4.6E-09		
	Uranium-236	1.2E-09	(0.00013)	(0.00001)
	<b>Uranium-238</b>	2.1E-07	1.3E-04	1.0E-05
A8	Americium-241	5.6E-10		
	Neptunium-237	8.9E-10		
	Plutonium-238	3.4E-09		
	Plutonium-239/240	4.1E-10		
	Technetium-99	8.4E-05		
	<b>Uranium-233/234</b>	2.1E-07		
	<b>Uranium-235</b>	2.1E-08		
	Uranium-236	9.1E-10	(0.000084)	
	<b>Uranium-238</b>	2.3E-07	8.4E-05	0

**Table 3.3. Dose calculations for ambient air monitoring stations – 2005 (continued)**

Station	Parameter <sup>a</sup>	Dose <sup>b</sup> (mrem/year)	Total dose for station <sup>c</sup>	Net dose for station <sup>d</sup>
A9	Americium-241	5.1E-10		
	Neptunium-237	9.7E-10		
	Plutonium-238	1.6E-09		
	Plutonium-239/240	7.7E-10		
	Technetium-99	6.4E-05		
	<b>Uranium-233/234</b>	1.9E-07		
	Uranium-235	5.9E-09		
	Uranium-236	2.5E-09	(0.000064)	
	<b>Uranium-238</b>	1.8E-07	6.4E-05	0
	Americium-241	5.6E-10		
	Neptunium-237	7.9E-10		
	Plutonium-238	1.9E-09		
A10	Plutonium-239/240	1.3E-09		
	Technetium-99	7.6E-05		
	<b>Uranium-233/234</b>	2.9E-07		
	<b>Uranium-235</b>	1.3E-08		
	Uranium-236	1.5E-09	(0.000077)	
	<b>Uranium-238</b>	2.7E-07	7.7E-05	0
	Americium-241	5.7E-10		
	Neptunium-237	7.8E-10		
	Plutonium-238	8.2E-10		
	Plutonium-239/240	1.2E-09		
	Technetium-99	6.4E-05		
A12	<b>Uranium-233/234</b>	1.9E-07		
	<b>Uranium-235</b>	1.8E-08		
	Uranium-236	1.3E-09	(0.000065)	
	<b>Uranium-238</b>	1.8E-07	6.5E-05	0
	Americium-241	6.0E-10		
	Neptunium-237	6.0E-10		
	Plutonium-238	8.3E-10		
	Plutonium-239/240	1.0E-09		
	Technetium-99	1.6E-04		
	<b>Uranium-233/234</b>	2.8E-07		
	<b>Uranium-235</b>	1.3E-08		
A15	Uranium-236	2.7E-09	(0.00016)	(0.000040)
	<b>Uranium-238</b>	2.5E-07	1.6E-04	4.0E-05
	Americium-241	5.7E-10		
	Neptunium-237	6.2E-10		
	Plutonium-238	2.8E-09		
	Plutonium-239/240	8.5E-10		
	Technetium-99	5.8E-05		
	<b>Uranium-233/234</b>	2.0E-07		
	<b>Uranium-235</b>	1.2E-08		
	Uranium-236	2.1E-09	(0.000058)	
	<b>Uranium-238</b>	1.9E-07	5.8E-05	0
A23	Americium-241	5.7E-10		
	Neptunium-237	6.2E-10		
	Plutonium-238	2.8E-09		
	Plutonium-239/240	8.5E-10		
	Technetium-99	5.8E-05		
	<b>Uranium-233/234</b>	2.0E-07		
	<b>Uranium-235</b>	1.2E-08		
	Uranium-236	2.1E-09	(0.000058)	
	<b>Uranium-238</b>	1.9E-07	5.8E-05	0

**Table 3.3. Dose calculations for ambient air monitoring stations – 2005 (continued)**

Station	Parameter <sup>a</sup>	Dose <sup>b</sup> (mrem/year)	Total dose for station <sup>c</sup>	Net dose for station <sup>d</sup>
A24	Americium-241	4.4E-10		
	Neptunium-237	1.0E-09		
	Plutonium-238	3.5E-09		
	Plutonium-239/240	1.0E-09		
	Technetium-99	4.4E-05		
	<b>Uranium-233/234</b>	2.9E-07		
	<b>Uranium-235</b>	1.2E-08		
	Uranium-236	1.9E-09	(0.000045)	
	<b>Uranium-238</b>	3.4E-07	4.5E-05	0
A28	Americium-241	5.3E-10		
	Neptunium-237	2.9E-10		
	Plutonium-238	1.8E-09		
	Plutonium-239/240	1.2E-09		
	Technetium-99	4.6E-05		
	<b>Uranium-233/234</b>	1.7E-07		
	<b>Uranium-235</b>	1.1E-08		
	Uranium-236	1.6E-09	(0.000046)	
	<b>Uranium-238</b>	1.9E-07	4.6E-05	0
A29	Americium-241	9.4E-10		
	Neptunium-237	2.3E-10		
	Plutonium-238	4.8E-09		
	Plutonium-239/240	1.2E-09		
	Technetium-99	4.7E-05		
	<b>Uranium-233/234</b>	1.7E-07		
	<b>Uranium-235</b>	1.4E-08		
	Uranium-236	9.8E-10	(0.000048)	
	<b>Uranium-238</b>	1.9E-07	4.8E-05	0
A36	Americium-241	4.9E-10		
	Neptunium-237	7.7E-10		
	Plutonium-238	2.3E-09		
	Plutonium-239/240	1.2E-09		
	Technetium-99	1.6E-04		
	<b>Uranium-233/234</b>	7.5E-07		
	<b>Uranium-235</b>	5.1E-08		
	Uranium-236	3.9E-09	(0.00016)	(0.000040)
	<b>Uranium-238</b>	8.4E-07	1.6E-04	4.0E-05
A37	Americium-241	8.5E-10		
	Neptunium-237	2.9E-10		
	Plutonium-238	1.9E-09		
	Plutonium-239/240	8.2E-10		
	Technetium-99	1.2E-04		
	<b>Uranium-233/234</b>	1.5E-07		
	Uranium-235	5.7E-09		
	Uranium-236	1.4E-09	(0.00012)	
	<b>Uranium-238</b>	2.0E-07	1.2E-04	-

**Table 3.3. Dose calculations for ambient air monitoring stations – 2005 (continued)**

Station	Parameter <sup>a</sup>	Dose <sup>b</sup> (mrem/year)	Total dose for station <sup>c</sup>	Net dose for station <sup>d</sup>
A41	Americium-241	4.7E-10		
	Neptunium-237	1.4E-09		
	Plutonium-238	1.4E-09		
	Plutonium-239/240	6.2E-10		
	<b>Technetium-99</b>	3.4E-04		
	<b>Uranium-233/234</b>	2.6E-07		
	<b>Uranium-235</b>	1.9E-08		
	Uranium-236	2.1E-12	(0.00035)	(0.00023)
	<b>Uranium-238</b>	2.4E-07	3.5E-04	2.3E-04
T7	Americium-241	5.9E-10		
	Neptunium-237	8.5E-10		
	Plutonium-238	1.3E-09		
	Plutonium-239/240	5.6E-10		
	Technetium-99	1.0E-04		
	<b>Uranium-233/234</b>	2.1E-07		
	<b>Uranium-235</b>	1.0E-08		
	Uranium-236	4.1E-09	0.00010)	0
	<b>Uranium-238</b>	1.9E-07	1.0E-04	0

<sup>a</sup>Parameters listed in **bold** type were detected at least once in the samples collected in 2005 (see Table 2.7).

<sup>b</sup>The dose calculation is based on the maximum detection of each parameter at each station. For parameters that were not detected, half the maximum detection limit for the parameter was used to calculate the concentration of each parameter in ambient air that is the basis for the dose. Measurements are provided in scientific notation. The number and sign (+ or -) to the right of the “E” indicate the number of places to the right or left of the decimal point. For example, 3.4E-04 is 0.00034 (the decimal point moves four places to the left); 2.1E+02 is 210 (the decimal point moves two places to the right).

<sup>c</sup>The total dose is provided in scientific notation and standard numeric format (in parentheses).

<sup>d</sup>The net dose is calculated by subtracting the total dose at Station A37 (background) from the total dose calculated for each station (the net dose is recorded as zero for stations with a gross dose less than the background station). The net dose is provided in scientific notation and standard numeric format (in parentheses).

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## 4. GROUNDWATER

This section summarizes analytical results for routine groundwater monitoring at PORTS in 2005 at the following locations:

- X-749/X-120/Peter Kiewit (PK) Landfill
- Quadrant I Groundwater Investigative Area/X-749A Classified Materials Disposal Facility
- Quadrant II Groundwater Investigative Area
- X-701B Holding Pond
- X-633 Pumphouse/Cooling Towers Area
- X-616 Chromium Sludge Surface Impoundments
- X-740 Waste Oil Handling Facility
- X-611A Former Lime Sludge Lagoons
- X-735 Landfills
- X-734 Landfills
- X-533 Switchyard Area
- Surface water monitoring locations
- Exit pathway monitoring locations

Results for radiological parameters and volatile organic compounds (VOCs) are reported in this section. Only those VOCs that were detected in at least one sampling event are listed in this section. All results are included for radiological parameters, even if a specific constituent was not detected at a specific well or location during any sampling event in 2005. Results for chromium at the X-616 Chromium Sludge Surface Impoundments are also included in this section because chromium is a primary contaminant in this area. Results are provided for metals at the X-633 Pumphouse/Cooling Towers Area, X-611A Former Lime Sludge Lagoons, and X-533 Switchyard Area because these are the only analytical parameters for these areas.

Throughout 2005, the laboratory used to analyze groundwater samples reported concentrations of VOCs detected above the laboratory's detection limit but below laboratory's confident reporting limit (also called the practical quantitation limit). These detections are reported by the laboratory with an "estimated" qualifier (J) to indicate that there is uncertainty, or error, associated with the measurement. These results are considered detections because by definition, the analytes are present in the sample; however, these estimated detections are usually at least an order of magnitude below the preliminary remediation goal for the constituent.

Two VOCs, acetone and methylene chloride, were frequently detected in both environmental and blank samples (field and trip blanks) collected in 2005. Methylene chloride is a common laboratory contaminant that is not typically detected in the PORTS groundwater plumes. Detections of methylene chloride are often qualified by the laboratory with a "B", which indicates that the analyte was also detected in the laboratory blank associated with the environmental sample and may be present due to laboratory contamination. Additionally, acetone is a common laboratory or glassware contaminant.

Other VOCs, including trichloroethene, 2-butanone (methyl ethyl ketone), and toluene, were detected in trip and field blanks during 2005. These detections indicate that samples (both environmental samples and blank samples) may become contaminated with low concentrations of VOCs during other portions of the sampling process, although contamination can still occur in the laboratory (acetone and trichloroethene were detected in laboratory blanks in 2005). Other sources of contamination may include

storage areas for sampling equipment (such as bottles and blank water), areas in which samples are collected or prepared, sample containers, and storage areas after samples are collected (such as refrigerators or sample shipping containers).

The primary purpose of the groundwater data, as stated in the *Quality Assurance Project Plan*, is to determine the nature and extent of contamination in groundwater and associated surface water at PORTS. Data collected in 2005 meet this purpose.

All radiological groundwater and surface water samples collected in the third quarter were analyzed by STL St. Louis; therefore, the results for transuranic radionuclides and uranium (total uranium and uranium isotopes) are not included as discussed in Chapter 1. The only fourth quarter samples sent to STL St. Louis are samples associated with the thirteen surface water sampling locations and samples associated with ten X-749/X-120/PK Landfill area wells. All other fourth quarter radiological samples were sent to the USEC Laboratory. Most of the wells affected by this issue are scheduled to be sampled for radionuclides during 2006. Although not required, the DOE will also sample during 2006 those affected wells for radionuclides that were not scheduled to be sampled again until 2007 (biennial wells).

Complete groundwater monitoring results for sampling completed as required by the *Integrated Groundwater Monitoring Plan* are provided in the *2005 Groundwater Monitoring Report for the Portsmouth Gaseous Diffusion Plant*.

The following tables are included in this section:

- Table 4.1. Volatile organic compounds detected at the X-749/X-120/PK Landfill
- Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill
- Table 4.3. Volatile organic compounds detected at the Quadrant I Groundwater Investigative Area
- Table 4.4. Results for radionuclides at the Quadrant I Groundwater Investigative Area
- Table 4.5. Volatile organic compounds detected at the Quadrant II Groundwater Investigative Area
- Table 4.6. Results for radionuclides at the Quadrant II Groundwater Investigative Area
- Table 4.7. Volatile organic compounds detected at the X-701B Holding Pond
- Table 4.8. Results for radionuclides at the X-701B Holding Pond
- Table 4.9. Results for chromium at the X-633 Pumphouse/Cooling Towers Area
- Table 4.10. Volatile organic compounds detected at the X-616 Chromium Sludge Surface Impoundments
- Table 4.11. Results for chromium at the X-616 Chromium Sludge Surface Impoundments
- Table 4.12. Results for radionuclides at the X-616 Chromium Sludge Surface Impoundments
- Table 4.13. Volatile organic compounds detected at the X-740 Waste Oil Handling Facility

- Table 4.14. Results for radionuclides at the X-740 Waste Oil Handling Facility
- Table 4.15. Results for beryllium and chromium at the X-611A Former Lime Sludge Lagoons
- Table 4.16. Volatile organic compounds detected at the X-735 Landfills
- Table 4.17. Results for radionuclides at the X-735 Landfills
- Table 4.18. Volatile organic compounds detected at the X-734 Landfills
- Table 4.19. Results for radionuclides at the X-734 Landfills
- Table 4.20. Results for cadmium, cobalt, and nickel at the X-533 Switchyard Area
- Table 4.21. Volatile organic compounds detected at surface water monitoring locations
- Table 4.22. Results for radionuclides at surface water monitoring locations
- Table 4.23. Results for radionuclides at exit pathway monitoring locations

The following laboratory data qualifiers are used in the tables in this section:

Data qualifier	Meaning
B	Inorganics (metals): the result was less than the practical quantitation limit but greater than or equal to the instrument detection limit. Organics (VOCs): the analyte was detected in the laboratory blank sample.
J	Organics (VOCs): the reported value is an estimated concentration greater than the method detection limit but less than the practical quantitation limit.
U	Undetected

Some results for radionuclides are reported in exponential notation. The number and sign (+ or -) to the right of the “E” indicate the number of places to the right or left of the decimal point. For example, 3.4E-04 is 0.00034 (the decimal point moves four places to the left); 2.1E+02 is 210 (the decimal point moves two places to the right). Data qualifiers, if any, are to the right of the result (for example, 5.66E-07 U, where U is the data qualifier that indicates the parameter was undetected).

**Table 4.1. Volatile organic compounds detected at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
F-27G	1,1-Dichloroethane	µg/L		1.1 J		
	cis-1,2-Dichloroethene	µg/L		1.1 J		
	Trichloroethene	µg/L		0.45 J		
MH GW-4	1,1-Dichloroethane	µg/L	0.42 J		0.46 J	0.41 J
	2-Butanone	µg/L	1.6 J		5 U	5 U
	Acetone	µg/L	10 U		10 U	2.3 J
	Chlorobenzene	µg/L	0.25 J		0.38 J	0.22 J
	cis-1,2-Dichloroethene	µg/L	1.6 J		1.9 J	1.2 J
MH GW-5	Vinyl chloride	µg/L	0.54 J		0.68 J	1 U
	1,1-Dichloroethane	µg/L	0.73 J		0.82 J	0.43 J
	Acetone	µg/L	4.8 J		10 U	4.3 J
	Chlorobenzene	µg/L	0.22 J		0.19 J	2 U
	cis-1,2-Dichloroethene	µg/L	3.4		3.9	1.8 J
PK-09G	Vinyl chloride	µg/L	0.57 J		0.42 J	1 U
	Chloroform	µg/L	1.2 J			
	cis-1,2-Dichloroethene	µg/L	1.9 J			
PK-10G	Trichloroethene	µg/L	140			
	Methylene chloride	µg/L	2 U		0.56 BJ	
	Trichloroethene	µg/L	2 U		0.19 J	
PK-11G	cis-1,2-Dichloroethene	µg/L	2 U		0.17 J	
PK-14G	Trichloroethene	µg/L	2 U		2 U	0.37 J
PK-15B	cis-1,2-Dichloroethene	µg/L	0.52 J		0.57 J	
PK-16G	1,1-Dichloroethane	µg/L	2 U		0.24 J	0.29 J
	cis-1,2-Dichloroethene	µg/L	2 U		2.6	3.8
	trans-1,2-Dichloroethene	µg/L	0.5 U		1 U	0.18 J
	Vinyl chloride	µg/L	1 U		1.6	1.3
	1,1-Dichloroethane	µg/L	1.4 J		3.8	2.9
PK-17B	1,1-Dichloroethene	µg/L	2 U		0.27 J	0.26 J
	Acetone	µg/L	13		10 U	10 U
	Benzene	µg/L	2 U		0.27 J	0.21 J
	Chlorobenzene	µg/L	0.73 J		0.57 J	1.1 J
	cis-1,2-Dichloroethene	µg/L	19		53	49
	trans-1,2-Dichloroethene	µg/L	0.7		1.6	1.5
	Trichloroethene	µg/L	0.8 J		1.7 J	2.7
	Vinyl chloride	µg/L	11		25	18
PK-18B	Acetone	µg/L	7.5 J		10 U	
PK-19B	1,1-Dichloroethane	µg/L	2.5		1 J	
	Chloroethane	µg/L	2.4		1.5 J	

**Table 4.1. Volatile organic compounds detected at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
PK-19B	cis-1,2-Dichloroethene	µg/L	0.22 J		2 U	
	Vinyl chloride	µg/L	1.2		0.82 J	
PK-21B	1,1-Dichloroethane	µg/L	190		220	160
	1,1-Dichloroethene	µg/L	2.5 J		2.6	2
	1,2-Dichloroethane	µg/L	1.3 J		2 U	0.89 J
	Benzene	µg/L	10 U		1 J	0.83 J
	cis-1,2-Dichloroethene	µg/L	15		14	15
	Trichloroethene	µg/L	10 U		0.75 J	0.71 J
	Vinyl chloride	µg/L	27		26	20
PK-PL6	1,1,1-Trichloroethane	µg/L	2	10	5.7	2.1
	1,1-Dichloroethane	µg/L	2.9	18	12	5.9
	1,1-Dichloroethene	µg/L	1.1 J	8.9	6.1	2.7
	Acetone	µg/L	10 U	10 U	10 U	3.1 J
	cis-1,2-Dichloroethene	µg/L	2	3.5	3	1.6 J
	Methylene chloride	µg/L	2 U	2 U	0.54 BJ	2 U
	Trichloroethene	µg/L	0.73 J	5.6	4	2.3
	Vinyl chloride	µg/L	1 U	1	1.4	1 U
	1,1,1-Trichloroethane	µg/L	13	14	8.9	4.2
PK-PL6A	1,1-Dichloroethane	µg/L	19	23	20	12
	1,1-Dichloroethene	µg/L	7.1	14	9.8	5.5
	Acetone	µg/L	10 U	10 U	10 U	3.7 J
	Chloroethane	µg/L	2 U	0.26 J	2 U	2 U
	cis-1,2-Dichloroethene	µg/L	2.3	4.1	3.6	2.4
	Methylene chloride	µg/L	2 U	2 U	0.72 BJ	2 U
	Trichloroethene	µg/L	4.7	7.1	6.2	4.5
	Vinyl chloride	µg/L	0.43 J	1.7	2.3	1.1
	1,1,1-Trichloroethane	µg/L	39			
STSW-101G	1,1-Dichloroethane	µg/L		79		
	1,1-Dichloroethene	µg/L		84		
	1,2-Dichloroethane	µg/L		36		
	Chloroform	µg/L		4.6 J		
	cis-1,2-Dichloroethene	µg/L		9		
	Trichloroethene	µg/L		140		
	1,1,1-Trichloroethane	µg/L		61		
	1,1-Dichloroethane	µg/L		250		
	1,1-Dichloroethene	µg/L		140		
STSW-102G	1,2-Dichloroethane	µg/L		77		
	Chloroethane	µg/L		9.4 J		

**Table 4.1. Volatile organic compounds detected at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
STSW-102G	Chloroform	µg/L		8.5 J		
	cis-1,2-Dichloroethene	µg/L		81		
	Trichloroethene	µg/L		580		
WP-01	Acetone	µg/L		10 U		3.7 J
	Chloromethane	µg/L		2 U		0.32 J
	Methylene chloride	µg/L		2 U		0.33 BJ
WP-03	1,1,1-Trichloroethane	µg/L	0.2 J	0.17 J	0.46 J	0.52 J
	1,1-Dichloroethane	µg/L	0.71 J	0.58 J	1.8 J	2
	1,1-Dichloroethene	µg/L	0.43 J	0.4 J	0.95 J	1.1 J
	1,2-Dichloroethane	µg/L	0.22 J	2 U	0.62 J	0.59 J
	Acetone	µg/L	10 U	10 U	10 U	3.6 J
	Chloroform	µg/L	2 U	2 U	0.16 J	2 U
	cis-1,2-Dichloroethene	µg/L	2 U	2 U	0.2 J	0.25 J
	Trichloroethene	µg/L	1.1 J	1 J	2.3	2.9
WP-04	Chloromethane	µg/L		2 U		0.93 J
	Methylene chloride	µg/L		2 U		0.36 BJ
X120-03G	Acetone	µg/L		6.8 J		
	Chloroform	µg/L		0.17 J		
	Methylene chloride	µg/L		0.47 J		
X120-05G	Chloromethane	µg/L		0.5 J		
	Trichloroethene	µg/L		7.1		
X120-06B	Methylene chloride	µg/L		0.38 J		
X120-08G	1,1,1-Trichloroethane	µg/L		6		6.5
	1,1-Dichloroethane	µg/L		4.5		4.4
	1,1-Dichloroethene	µg/L		15		17
	1,2-Dichloroethane	µg/L		0.48 J		0.56 J
	Chloroform	µg/L		0.6 J		0.55 J
	cis-1,2-Dichloroethene	µg/L		0.2 J		0.3 J
	Methylene chloride	µg/L		0.5 J		0.43 BJ
	Trichloroethene	µg/L		11		10
	1,1,1-Trichloroethane	µg/L		68		
X120-09G	1,1,2-Trichloroethane	µg/L		3.1 J		
	1,1-Dichloroethane	µg/L		42		
	1,1-Dichloroethene	µg/L		170		
	1,2-Dichloroethane	µg/L		4.3 J		
	Chloroform	µg/L		5.3 J		
	cis-1,2-Dichloroethene	µg/L		3.2 J		
	Tetrachloroethene	µg/L		0.92 J		

**Table 4.1. Volatile organic compounds detected at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X120-09G	Trichloroethene	µg/L		96		
X120-10G	1,1,1-Trichloroethane	µg/L		3.1		
	1,1-Dichloroethane	µg/L		2.5		
	1,1-Dichloroethene	µg/L		11		
	Chloroform	µg/L		0.35 J		
	Methylene chloride	µg/L		0.45 J		
	Trichloroethene	µg/L		0.99 J		
X120-11G	cis-1,2-Dichloroethene	µg/L		6.3 J		
	Methylene chloride	µg/L		13 BJ		
	Trichloroethene	µg/L		610		
X749-04G	Methylene chloride	µg/L	90 BJ			
	Trichloroethene	µg/L	1600			
X749-06G	1,1,1-Trichloroethane	µg/L		750		710
	1,1,2-Trichloroethane	µg/L		200 U		35 J
	1,1-Dichloroethane	µg/L		1500		1500
	1,1-Dichloroethene	µg/L		1400		1300
	1,2-Dichloroethane	µg/L		35 J		30 J
	Chloroform	µg/L		100 J		96
	cis-1,2-Dichloroethene	µg/L		210		290
	Methylene chloride	µg/L		200 U		21 J
	Tetrachloroethene	µg/L		81 J		130
	Trichloroethene	µg/L		3200		4200
	Vinyl chloride	µg/L		100 U		19 J
X749-07G	1,1,1-Trichloroethane	µg/L	170	120	150	160
	1,1,2-Trichloroethane	µg/L	40 U	20 U	2.2 J	2 U
	1,1-Dichloroethane	µg/L	180	270	190	120
	1,1-Dichloroethene	µg/L	230	230	160	210
	1,2-Dichloroethane	µg/L	97	94	81	32
	Benzene	µg/L	40 U	20 U	14 U	0.3 J
	Chloroethane	µg/L	40 U	40 U	2.7 J	7.3
	Chloroform	µg/L	11 J	10 J	8.2 J	4.9
	cis-1,2-Dichloroethene	µg/L	29 J		31	23
	Methylene chloride	µg/L	40 U	100 U	14 U	0.81 BJ
	Tetrachloroethene	µg/L	40 U	20 U	2.6 J	2.4
	trans-1,2-Dichloroethene	µg/L	10 U	10 U	0.72 J	0.38 J
	Trichloroethene	µg/L	500	560	510	350
	Vinyl chloride	µg/L	20 U	20 U	7.1 U	2.7
X749-08G	1,1,1-Trichloroethane	µg/L	130	78		68

**Table 4.1. Volatile organic compounds detected at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-08G	1,1-Dichloroethane	µg/L	56	47		35
	1,1-Dichloroethene	µg/L	190	140		110
	1,2-Dichloroethane	µg/L	16 J	7.7		7.2
	Chloroethane	µg/L	40 U	10 U		0.83 J
	Chloroform	µg/L	40 U	2.2 J		1.6 J
	cis-1,2-Dichloroethene	µg/L	57			34
	Methylene chloride	µg/L	10 BJ	25 U		0.59 BJ
	trans-1,2-Dichloroethene	µg/L	10 U	2.5 U		0.3 J
	Trichloroethene	µg/L	230	180		140
	Vinyl chloride	µg/L	20 U	5 U		1.8
X749-09GA	1,1,1-Trichloroethane	µg/L	120			55
	1,1,2-Trichloroethane	µg/L	8 U			0.37 J
	1,1-Dichloroethane	µg/L	46			18
	1,1-Dichloroethene	µg/L	180			62
	1,2-Dichloroethane	µg/L	7.9 J			2.3
	Acetone	µg/L	40 U			3 J
	Chloroethane	µg/L	8 U			0.37 J
	Chloroform	µg/L	2.6 J			0.95 J
	cis-1,2-Dichloroethene	µg/L	39			15
	Toluene	µg/L	8 U			0.47 J
	trans-1,2-Dichloroethene	µg/L	2 U			0.16 J
	Trichloroethene	µg/L	130			61
X749-10GA	Vinyl chloride	µg/L	2 J			0.52 J
	1,1-Dichloroethane	µg/L	16	15	12	13
	1,1-Dichloroethene	µg/L	33	24	20	22
	1,2-Dichloroethane	µg/L	0.18 J	1 U	2 U	2 U
	Acetone	µg/L	10 U	10 U	10 U	1.9 J
	Chloroethane	µg/L	1.2 J	1.1 J	0.95 J	1.2 J
	cis-1,2-Dichloroethene	µg/L	6.3		4.3	5.7
	Trichloroethene	µg/L	0.75 J	0.69 J	0.77 J	0.91 J
X749-13G	Vinyl chloride	µg/L	1.2	0.81 J	0.65 J	0.94 J
	1,1,1-Trichloroethane	µg/L		67		
	1,1-Dichloroethane	µg/L		13		
	1,1-Dichloroethene	µg/L		100		
	1,2-Dichloroethane	µg/L		1.7 J		
	Chloroethane	µg/L		0.57 J		
	Chloroform	µg/L		2.7 J		
	cis-1,2-Dichloroethene	µg/L		13		

**Table 4.1. Volatile organic compounds detected at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-13G	Trichloroethene	µg/L		94		
X749-20G	1,1,1-Trichloroethane	µg/L	15			
	1,1-Dichloroethane	µg/L	17			
	1,1-Dichloroethene	µg/L	23			
	1,2-Dichloroethane	µg/L	4.8 J			
	Acetone	µg/L	39 J			
	Chloroform	µg/L	1.8 J			
	cis-1,2-Dichloroethene	µg/L	9.3 J			
	Trichloroethene	µg/L	120			
X749-21G	1,1,1-Trichloroethane	µg/L	2 U			0.92 J
	1,1-Dichloroethene	µg/L	2 U			0.45 J
	Acetone	µg/L	10 U			2.6 J
	Trichloroethene	µg/L	1.6 J			3.4
X749-23G	Acetone	µg/L	8.5 J			
X749-24G	Acetone	µg/L	4.3 J			10 U
X749-25G	1,1,1-Trichloroethane	µg/L	42			
	1,1-Dichloroethane	µg/L	11			
	1,1-Dichloroethene	µg/L	57			
	1,2-Dichloroethane	µg/L	3.2 J			
	Chloroform	µg/L	1.2 J			
	cis-1,2-Dichloroethene	µg/L	13			
	Methylene chloride	µg/L	1.5 BJ			
	Trichloroethene	µg/L	54			
X749-26G	1,1,1-Trichloroethane	µg/L				29
	1,1-Dichloroethane	µg/L				49
	1,1-Dichloroethene	µg/L				37
	1,2-Dichloroethane	µg/L				32
	Chloroform	µg/L				2.3
	cis-1,2-Dichloroethene	µg/L				6
	Trichloroethene	µg/L				76
X749-35G	1,1,1-Trichloroethane	µg/L	190			
	1,1-Dichloroethane	µg/L	15 J			
	1,1-Dichloroethene	µg/L	97			
	cis-1,2-Dichloroethene	µg/L	6.7 J			
	Trichloroethene	µg/L	200			
X749-37G	1,1,1-Trichloroethane	µg/L		61		
	1,1,2-Trichloroethane	µg/L		2.2 J		
	1,1-Dichloroethane	µg/L		44		

**Table 4.1. Volatile organic compounds detected at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-37G	1,1-Dichloroethene	µg/L		130		
	1,2-Dichloroethane	µg/L		3.1 J		
	Chloroform	µg/L		4.3 J		
	cis-1,2-Dichloroethene	µg/L		7.2 J		
	Tetrachloroethene	µg/L		2.4 J		
	Trichloroethene	µg/L		130		
X749-40G	Trichloroethene	µg/L		1.9 J		
X749-41G	Trichloroethene	µg/L		530		
X749-42G	Acetone	µg/L		8.6 J		
	cis-1,2-Dichloroethene	µg/L		0.62 J		
	Trichloroethene	µg/L		70		
X749-44G	1,1,1-Trichloroethane	µg/L		4.1		3.7
	1,1-Dichloroethane	µg/L		18		14
	1,1-Dichloroethene	µg/L		12		9.2
	1,2-Dichloroethane	µg/L		5.7		4.5
	Chloroform	µg/L		1 J		0.79 J
	cis-1,2-Dichloroethene	µg/L	2.6	2.6		1.9 J
	Trichloroethene	µg/L	31	31		26
	1,1,1-Trichloroethane	µg/L		3.1		0.57 J
X749-45G	1,1-Dichloroethane	µg/L		24		3.6
	1,1-Dichloroethene	µg/L		15		2.5
	1,2-Dichloroethane	µg/L		6.1		1.1 J
	2-Butanone	µg/L		16		5.8
	Acetone	µg/L		10 U		29
	Chloroethane	µg/L		2.5		1.3 J
	Chloroform	µg/L		0.67 J		2 U
	cis-1,2-Dichloroethene	µg/L	20	25		6.5
	Toluene	µg/L		2 U		0.43 J
	Trichloroethene	µg/L	51	48		9.6
X749-50B	1,1-Dichloroethane	µg/L				12
	1,1-Dichloroethene	µg/L				0.63 J
	1,2-Dichloroethane	µg/L				7.6
	Chloroethane	µg/L				1.5 J
	cis-1,2-Dichloroethene	µg/L				2.5
	Trichloroethene	µg/L				0.57 J
X749-54B	1,1-Dichloroethane	µg/L	0.73 J			0.92 J
	Acetone	µg/L	10 U			17
	Methylene chloride	µg/L	0.79 BJ			2 U

**Table 4.1. Volatile organic compounds detected at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-54B	Trichloroethene	µg/L	8.2			8.9
X749-57G	1,2-Dichlorobenzene	µg/L		0.51 J		
	Trichloroethene	µg/L		0.21 J		
X749-60B	Benzene	µg/L				0.22 J
	Toluene	µg/L				0.33 J
X749-64B	Acetone	µg/L				10
X749-67G	1,1,1-Trichloroethane	µg/L		27		38
	1,1,2-Trichloroethane	µg/L		20 U		0.96 J
	1,1-Dichloroethane	µg/L		190		190
	1,1-Dichloroethene	µg/L		140		150
	1,2-Dichloroethane	µg/L		49		52
	Acetone	µg/L		100 U		9.1 J
	Benzene	µg/L		20 U		0.64 J
	Chloroethane	µg/L		14 J		10
	Chloroform	µg/L		7.3 J		7.6
	cis-1,2-Dichloroethene	µg/L	160	160		150
	Methylene chloride	µg/L		20 U		0.41 J
	Tetrachloroethene	µg/L		20 U		0.21 J
	Toluene	µg/L		20 U		0.31 J
	trans-1,2-Dichloroethene	µg/L	10 U	5 U		0.72 J
	Trichloroethene	µg/L	520	450		580
	Vinyl chloride	µg/L	20 U	10 U		1.6
X749-68G	Acetone	µg/L				9.5 J
	Toluene	µg/L				0.39 J
X749-96G	Toluene	µg/L	2 U	2 U	2 U	0.47 J
X749-97G	1,1-Dichloroethane	µg/L	2.9	4.1	3.1	1.5 J
	1,1-Dichloroethene	µg/L	1.4 J	1.8 J	1.2 J	0.66 J
	1,2-Dichloroethane	µg/L	0.84 J	0.95 J	0.86 J	0.44 J
	Acetone	µg/L	10 U	2.4 J	10 U	10 U
	Chloroethane	µg/L	2 U	0.42 J	2 U	2 U
	cis-1,2-Dichloroethene	µg/L	3.2	5.3	3.9	1.3 J
	Trichloroethene	µg/L	4.4	6.3	2.9	2.6
X749-98G	Toluene	µg/L	2 U	2 U	2 U	0.35 J
X749-100M	Carbon disulfide	µg/L	2 U	1.5 J		
	Chloromethane	µg/L	2 U	1.5 J		
X749-102G	1,1,1-Trichloroethane	µg/L	0.85 J	0.76 J	1 J	0.79 J
	1,1,2,2-Tetrachloroethane	µg/L	0.17 J	0.83 U	1 U	1 U
	1,1-Dichloroethane	µg/L	3	3.8	4.1	3.6

**Table 4.1. Volatile organic compounds detected at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-102G	1,1-Dichloroethene	µg/L	2.	2.3	2.5	2.1
	1,2-Dichloroethane	µg/L	1.1 J	1 J	1.4 J	0.95 J
	4-Methyl-2-pentanone	µg/L	0.94 J	5 U	5 U	5 U
	Acetone	µg/L	10 U	3.2 J	10 U	10 U
	Chloroform	µg/L	0.28 J	0.23 J	0.25 J	0.19 J
	cis-1,2-Dichloroethene	µg/L	0.42 J	0.49 J	0.53 J	0.51 J
	Toluene	µg/L	2 U	2 U	2 U	1.3 J
	Trichloroethene	µg/L	4.5	6.3	7	6.3
X749-103G	Chloromethane	µg/L	2 U	2 U	0.48 J	2 U
	Methylene chloride	µg/L	1 BJ	2 U	2 U	2 U
X749-104G	Acetone	µg/L	10 U	2.1 J	10 U	10 U
	Chloromethane	µg/L	2 U	2 U	0.77 J	2 U
X749-105G	Carbon tetrachloride	µg/L	1.4 J	2 U	2 U	2 U
	Chloroform	µg/L	0.95 J	2 U	2 U	2 U
X749-106G	1,1,1-Trichloroethane	µg/L		130		110
	1,1,2-Trichloroethane	µg/L		5.5 J		4.5
	1,1-Dichloroethane	µg/L		84		86
	1,1-Dichloroethene	µg/L		330		320
	1,2-Dichloroethane	µg/L		7.9 J		6.4
	Chloroform	µg/L		8.8 J		7.3
	cis-1,2-Dichloroethene	µg/L		5.6 J		4.6
	Tetrachloroethene	µg/L		20 U		1.6 J
	Trichloroethene	µg/L		180		200
	Vinyl chloride	µg/L		10 U		0.63 J
X749-107G	1,1,1-Trichloroethane	µg/L		110		110
	1,1,2-Trichloroethane	µg/L		4.4 J		4.9
	1,1-Dichloroethane	µg/L		79		79
	1,1-Dichloroethene	µg/L		300		300
	1,2-Dichloroethane	µg/L		7.8 J		6.6
	Chloroethane	µg/L		20 U		0.49 J
	Chloroform	µg/L		9.9 J		8.2
	cis-1,2-Dichloroethene	µg/L		6.6 J		5.9
	Tetrachloroethene	µg/L		20 U		1.3 J
	Trichloroethene	µg/L		160		170
X749-108G	1,1,1-Trichloroethane	µg/L		130		110
	1,1,2-Trichloroethane	µg/L		4 J		4.3
	1,1-Dichloroethane	µg/L		80		75
	1,1-Dichloroethene	µg/L		270		250

**Table 4.1. Volatile organic compounds detected at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-108G	1,2-Dichloroethane	µg/L		7.3 J		6.4
	Chloroform	µg/L		9.4 J		8.7
	cis-1,2-Dichloroethene	µg/L		4.7 J		4.7
	Tetrachloroethene	µg/L		16 U		1.9 J
	Trichloroethene	µg/L		180		190
	Vinyl chloride	µg/L		8 U		0.69 J
X749-109G	Toluene	µg/L		2 U		2.2
	Trichloroethene	µg/L		0.46 J		2 U
X749-110G	1,1,1-Trichloroethane	µg/L		32		40
	1,1,2-Trichloroethane	µg/L		16 U		0.94 J
	1,1-Dichloroethane	µg/L		140		150
	1,1-Dichloroethene	µg/L		150		160
	1,2-Dichloroethane	µg/L		42		60
	Benzene	µg/L		16 U		0.62 J
	Chloroethane	µg/L		21		17
	Chloroform	µg/L		6.1 J		7.4
	cis-1,2-Dichloroethene	µg/L		150		190
	Methylene chloride	µg/L		16 U		1.1 J
	Tetrachloroethene	µg/L		16 U		0.21 J
	Toluene	µg/L		16 U		0.38 J
X749-111G	trans-1,2-Dichloroethene	µg/L		4 U		1.9
	Trichloroethene	µg/L		250		380
X749-112G	Vinyl chloride	µg/L		8 U		5
	Toluene	µg/L		2 U		0.58 J
X749-113G	Trichloroethene	µg/L		2 U		0.33 J
	1,1,1-Trichloroethane	µg/L		87		0.35 J
X749-114G	1,1,2-Trichloroethane	µg/L		8 U		81
	1,1-Dichloroethane	µg/L		87		1.1 J
	1,1-Dichloroethene	µg/L		130		81
	1,2-Dichloroethane	µg/L		38		130
	Chloroform	µg/L		6.1 J		36
	cis-1,2-Dichloroethene	µg/L		8.8		5.6
	Tetrachloroethene	µg/L		1.7 J		9.3
	Trichloroethene	µg/L		180		1.6 J
	Vinyl chloride	µg/L		4 U		180
	1,1,1-Trichloroethane	µg/L		0.94 J		0.69 J
	1,1-Dichloroethane	µg/L		0.6 J		0.28 J
						0.54 J

**Table 4.1. Volatile organic compounds detected at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-114G	1,1-Dichloroethene	µg/L		0.43 J		0.14 J
	Benzene	µg/L		0.57 J		0.5 J
	cis-1,2-Dichloroethene	µg/L		0.2 J		0.23 J
	Toluene	µg/L		2 U		0.32 J
X749-BG9G	1,1,1-Trichloroethane	µg/L	1.1 J			0.66 J
	1,1-Dichloroethane	µg/L	2 U			0.27 J
	1,1-Dichloroethene	µg/L	0.82 J			0.52 J
	Methylene chloride	µg/L	0.9 BJ			2 U
	Toluene	µg/L	2 U			0.28 J
	Trichloroethene	µg/L	0.83 J			0.62 J
X749-PZ02G	1,1-Dichloroethene	µg/L		0.38 J		0.22 J
	Toluene	µg/L		2 U		0.2 J
	Trichloroethene	µg/L		1.3 J		1.2 J
X749-PZ03G	Chloromethane	µg/L	2 U	0.7 J	2 U	2 U
	Methylene chloride	µg/L	2 U	0.5 BJ	0.51 BJ	0.39 BJ
X749-PZ04G	1,1,1-Trichloroethane	µg/L	36 J	35	31	23
	1,1,2-Trichloroethane	µg/L	40 U	20 U	4 U	0.57 J
	1,1-Dichloroethane	µg/L	170	190	180	130
	1,1-Dichloroethene	µg/L	78	81	83	58
	1,2-Dichloroethane	µg/L	55	57	55	37
	Chloroethane	µg/L	40 U	20 U	1.5 J	0.83 J
	Chloroform	µg/L	5.3 J	6.4 J	5.3	4.6
	cis-1,2-Dichloroethene	µg/L	51	57	51	38
	Methylene chloride	µg/L	10 BJ	6.1 BJ	4 U	0.94 BJ
	Tetrachloroethene	µg/L	40 U	20 U	4 U	0.31 J
	trans-1,2-Dichloroethene	µg/L	10 U	5 U	0.3 J	0.25 J
	Trichloroethene	µg/L	370	480	420	270
X749-PZ05G	Vinyl chloride	µg/L	20 U	10 U	2 U	0.77 J
	Acetone	µg/L	10 U	10 U	3.3 J	10 U
	Methylene chloride	µg/L	2 U	0.38 BJ	0.55 BJ	0.4 BJ
X749-PZ06G	Trichloroethene	µg/L	0.2 J	2 U	2 U	2 U
	1,1,1-Trichloroethane	µg/L		1.7 J		12
X749-PZ06G	1,1,2-Trichloroethane	µg/L		2 U		0.39 J
	1,1-Dichloroethane	µg/L		1.6 J		5.6
	1,1-Dichloroethene	µg/L		6		25
	1,2-Dichloroethane	µg/L		2 U		0.78 J
	Chloroform	µg/L		0.26 J		1.2 J
	cis-1,2-Dichloroethene	µg/L	0.28 J	2 U		0.24 J

**Table 4.1. Volatile organic compounds detected at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-PZ06G	Trichloroethene	µg/L	9.9	2.5		12
X749-PZ08G	1,1-Dichloroethane	µg/L		0.22J		
	cis-1,2-Dichloroethene	µg/L		0.58J		
	Trichloroethene	µg/L		1.3J		
X749-PZ09G	1,1,1-Trichloroethane	µg/L	11			
	1,1-Dichloroethane	µg/L	10			
	1,1-Dichloroethene	µg/L	29			
	Chloroethane	µg/L	1J			
	Chloroform	µg/L	1J			
	cis-1,2-Dichloroethene	µg/L	14			
	Tetrachloroethene	µg/L	0.86J			
	Trichloroethene	µg/L	140			
	Vinyl chloride	µg/L	2.4J			
X749-PZ10G	1,1,1-Trichloroethane	µg/L	22J			26
	1,1-Dichloroethane	µg/L	40U			0.67J
	1,1-Dichloroethene	µg/L	110			120
	Chloroform	µg/L	20J			25
	cis-1,2-Dichloroethene	µg/L	40U			0.76J
	Trichloroethene	µg/L	750			1000
X749-PZ11G	1,1,1-Trichloroethane	µg/L	120			
	1,1-Dichloroethane	µg/L	44			
	1,1-Dichloroethene	µg/L	74			
	Benzene	µg/L	0.9J			
	Chloroform	µg/L	1.3J			
	cis-1,2-Dichloroethene	µg/L	18			
	trans-1,2-Dichloroethene	µg/L	0.74J			
	Trichloroethene	µg/L	170			
	Vinyl chloride	µg/L	5.4			
X749-PZ13G	1,1,1-Trichloroethane	µg/L	220			
	1,1-Dichloroethane	µg/L	83			
	1,1-Dichloroethene	µg/L	320			
	1,2-Dichloroethane	µg/L	11J			
	Chloroethane	µg/L	4.3J			
	Chloroform	µg/L	3.6J			
	cis-1,2-Dichloroethene	µg/L	68			
	Trichloroethene	µg/L	270			
	Vinyl chloride	µg/L	3.6J			
X749-PZ14G	1,1,1-Trichloroethane	µg/L	70			

**Table 4.1. Volatile organic compounds detected at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-PZ14G	1,1-Dichloroethane	µg/L	51			
	1,1-Dichloroethene	µg/L	140			
	1,2-Dichloroethane	µg/L	12			
	Chloroethane	µg/L	1.7 J			
	Chloroform	µg/L	2.3 J			
	cis-1,2-Dichloroethene	µg/L	48			
	Trichloroethene	µg/L	190			
	Vinyl chloride	µg/L	2.6 J			
X749-WPW	1,1,1-Trichloroethane	µg/L		160		210
	1,1,2-Trichloroethane	µg/L		67 U		1.9 J
	1,1-Dichloroethane	µg/L		200		160
	1,1-Dichloroethene	µg/L		310		290
	1,2-Dichloroethane	µg/L		55 J		36
	Benzene	µg/L		67 U		1.8 J
	Chloroethane	µg/L		67 U		5.1 J
	Chloroform	µg/L		19 J		27
	cis-1,2-Dichloroethene	µg/L		91		110
	Methylene chloride	µg/L		67 U		1.2 J
	Tetrachloroethene	µg/L		67 U		4.2 J
	trans-1,2-Dichloroethene	µg/L		17 U		0.55 J
	Trichloroethene	µg/L		950		1200
	Vinyl chloride	µg/L		19 J		24

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
F-27G	Americium-241	pCi/L		0.00863 U		
	Neptunium-237	pCi/L		0.01033 U		
	Plutonium-238	pCi/L		0.0103 U		
	Plutonium-239/240	pCi/L		3.1E-05 U		
	Technetium-99	pCi/L		3.03 U		
	Uranium	$\mu\text{g}/\text{L}$		2.001		
	Uranium-233/234	pCi/L		0.883		
	Uranium-235	pCi/L		0.0389 U		
	Uranium-236	pCi/L		0.01747 U		
	Uranium-238	pCi/L		0.6688		
F-28B	Americium-241	pCi/L		0 U		
	Neptunium-237	pCi/L		3.3E-05 U		
	Plutonium-238	pCi/L		8.1E-06 U		
	Plutonium-239/240	pCi/L		0 U		
	Technetium-99	pCi/L		4.22 U		
	Uranium	$\mu\text{g}/\text{L}$		0.05046 U		
	Uranium-233/234	pCi/L		0.0426 U		
	Uranium-235	pCi/L		0 U		
	Uranium-236	pCi/L		-0.0094 U		
	Uranium-238	pCi/L		0.017 U		
MH GW-4	Americium-241	pCi/L	0 U			
	Neptunium-237	pCi/L	-0.008 U			
	Plutonium-238	pCi/L	-0.008 U			
	Plutonium-239/240	pCi/L	0.0083 U			
	Technetium-99	pCi/L	0.643 U			
	Uranium	$\mu\text{g}/\text{L}$	34.95			
	Uranium-233/234	pCi/L	32.52			
	Uranium-235	pCi/L	2.15			
	Uranium-236	pCi/L	0.3264			
	Uranium-238	pCi/L	11.55			
MH GW-5	Americium-241	pCi/L	0.0105 U			
	Neptunium-237	pCi/L	0.0101 U			
	Plutonium-238	pCi/L	0.0101 U			
	Plutonium-239/240	pCi/L	1E-05 U			
	Technetium-99	pCi/L	2.91 U			
	Uranium	$\mu\text{g}/\text{L}$	26.74			
	Uranium-233/234	pCi/L	25.32			
	Uranium-235	pCi/L	1.322			

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
MH GW-5	Uranium-236	pCi/L	0.2552			
	Uranium-238	pCi/L	8.864			
PK-09G	Americium-241	pCi/L	0.0189 U			
	Neptunium-237	pCi/L	-0.034 U			
	Plutonium-238	pCi/L	0.0257 U			
	Plutonium-239/240	pCi/L	0.0086 U			
	Technetium-99	pCi/L	3.59 U			
	Uranium	µg/L	0.2164 U			
	Uranium-233/234	pCi/L	0.0908 U			
	Uranium-235	pCi/L	0.0249 U			
	Uranium-236	pCi/L	0.0112 U			
	Uranium-238	pCi/L	0.0704 U			
PK-10G	Americium-241	pCi/L	0.0102 U			
	Neptunium-237	pCi/L	-0.009 U			
	Plutonium-238	pCi/L	0.0172 U			
	Plutonium-239/240	pCi/L	0.0259 U			
	Technetium-99	pCi/L	0.362 U			
	Uranium	µg/L	0.1882			
	Uranium-233/234	pCi/L	0.1267			
	Uranium-235	pCi/L	1E-05 U			
	Uranium-236	pCi/L	0.0100 U			
	Uranium-238	pCi/L	0.0632			
PK-11G	Americium-241	pCi/L	0.0469 U			
	Neptunium-237	pCi/L	0.0197 U			
	Plutonium-238	pCi/L	0.0196 U			
	Plutonium-239/240	pCi/L	0.0098 U			
	Technetium-99	pCi/L	8.78			
	Uranium	µg/L	0.2268			
	Uranium-233/234	pCi/L	0.0955 U			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0762			
PK-14G	Americium-241	pCi/L	0.0105 U			
	Neptunium-237	pCi/L	0.0195 U			
	Plutonium-238	pCi/L	0.0097 U			
	Plutonium-239/240	pCi/L	0.0097 U			
	Technetium-99	pCi/L	8.6			
	Uranium	µg/L	1.16			

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
PK-14G	Uranium-233/234	pCi/L	0.4954			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	1E-05 U			
	Uranium-238	pCi/L	0.3898			
PK-15B	Americium-241	pCi/L	0.0105 U			
	Neptunium-237	pCi/L	8E-06 U			
	Plutonium-238	pCi/L	0.0311 U			
	Plutonium-239/240	pCi/L	0.0078 U			
	Technetium-99	pCi/L	7.5 U			
	Uranium	µg/L	0.1969 U			
	Uranium-233/234	pCi/L	0.1357			
	Uranium-235	pCi/L	0.0335 U			
	Uranium-236	pCi/L	-0.010 U			
PK-16G	Uranium-238	pCi/L	0.0632 U			
	Americium-241	pCi/L	0.0196 U			
	Neptunium-237	pCi/L	0.0082 U			
	Plutonium-238	pCi/L	0.0244 U			
	Plutonium-239/240	pCi/L	0.0163 U			
	Technetium-99	pCi/L	5.74 U			
	Uranium	µg/L	5.391			
	Uranium-233/234	pCi/L	2.08			
	Uranium-235	pCi/L	0.0555 U			
PK-17B	Uranium-236	pCi/L	0.0125 U			
	Uranium-238	pCi/L	1.806			
	Americium-241	pCi/L	0.0099 U			
	Neptunium-237	pCi/L	8E-06 U			
	Plutonium-238	pCi/L	0.0079 U			
	Plutonium-239/240	pCi/L	-0.008 U			
	Technetium-99	pCi/L	7.05 U			
	Uranium	µg/L	0.906			
	Uranium-233/234	pCi/L	0.5099			
PK-18B	Uranium-235	pCi/L	0.0121 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.3033			
	Americium-241	pCi/L	-0.01 U			
	Neptunium-237	pCi/L	-0.038 U			
	Plutonium-238	pCi/L	0.0381 U			
	Plutonium-239/240	pCi/L	0.0095 U			

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
PK-18B	Technetium-99	pCi/L	5.47 U			
	Uranium	µg/L	0.0557 U			
	Uranium-233/234	pCi/L	0.2062			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0187 U			
PK-19B	Americium-241	pCi/L	-0.022 U			
	Neptunium-237	pCi/L	0.0084 U			
	Plutonium-238	pCi/L	0.0084 U			
	Plutonium-239/240	pCi/L	0.0167 U			
	Technetium-99	pCi/L	5.04 U			
	Uranium	µg/L	0.1715			
	Uranium-233/234	pCi/L	0.1465			
	Uranium-235	pCi/L	0.0139 U			
	Uranium-236	pCi/L	0.025 U			
PK-20B	Uranium-238	pCi/L	0.0562			
	Americium-241	pCi/L	0.0106 U			
	Neptunium-237	pCi/L	-0.009 U			
	Plutonium-238	pCi/L	0.0184 U			
	Plutonium-239/240	pCi/L	-0.018 U			
	Technetium-99	pCi/L	2.87 U			
	Uranium	µg/L	1.366			
	Uranium-233/234	pCi/L	0.7563			
	Uranium-235	pCi/L	0.0246 U			
PK-21B	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.4568			
	Americium-241	pCi/L	0.0301 U			
	Neptunium-237	pCi/L	8E-06 U			
	Plutonium-238	pCi/L	0 U			
	Plutonium-239/240	pCi/L	0.0077 U			
	Technetium-99	pCi/L	5.6 U			
	Uranium	µg/L	0.1244 U			
	Uranium-233/234	pCi/L	0.0211 U			
PK-PL6	Uranium-235	pCi/L	3E-05 U			
	Uranium-236	pCi/L	-0.012 U			
	Uranium-238	pCi/L	0.0419 U			
	Americium-241	pCi/L	0.0222 U	0.01681 U		
Neptunium-237	pCi/L	0.0082 U	0.01737 U			

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
PK-PL6	Plutonium-238	pCi/L	0.0244 U	-0.0087 U		
	Plutonium-239/240	pCi/L	0.0163 U	-0.0086 U		
	Technetium-99	pCi/L	2.03 U	-1.03 U		
	Uranium	µg/L	14.96	6.834		
	Uranium-233/234	pCi/L	13.44	6.069		
	Uranium-235	pCi/L	0.7734	0.4449		
	Uranium-236	pCi/L	0.0882	0.0682		
	Uranium-238	pCi/L	4.956	2.256		
	Americium-241	pCi/L	0.0182 U	-0.0089 U		
PK-PL6A	Neptunium-237	pCi/L	0 U	0.00764 U		
	Plutonium-238	pCi/L	9E-06 U	0.00763 U		
	Plutonium-239/240	pCi/L	-0.028 U	0 U		
	Technetium-99	pCi/L	2.92 U	-1.49 U		
	Uranium	µg/L	3.241	2.112		
	Uranium-233/234	pCi/L	1.899	1,067		
	Uranium-235	pCi/L	0.1085	0.03403 U		
	Uranium-236	pCi/L	0.0195 U	0 U		
	Uranium-238	pCi/L	1.079	0.7066		
STSW-101G	Americium-241	pCi/L		1.0E-05 U		
	Neptunium-237	pCi/L		-0.0099 U		
	Plutonium-238	pCi/L		0.03942 U		
	Plutonium-239/240	pCi/L		0.03942 U		
	Technetium-99	pCi/L		39.8		
	Uranium	µg/L		0.02393 U		
	Uranium-233/234	pCi/L		0.02401 U		
	Uranium-235	pCi/L		0 U		
	Uranium-236	pCi/L		0.00885 U		
STSW-102G	Uranium-238	pCi/L		-0.00799 U		
	Americium-241	pCi/L		0.01675 U		
	Neptunium-237	pCi/L		0 U		
	Plutonium-238	pCi/L		0.03216 U		
	Plutonium-239/240	pCi/L		0.02411 U		
	Technetium-99	pCi/L		145		
	Uranium	µg/L		0.9763		
	Uranium-233/234	pCi/L		0.3747		
	Uranium-235	pCi/L		0.00963 U		
	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.3272		

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
WP-01	Americium-241	pCi/L		0.00861 U		
	Neptunium-237	pCi/L		0.00737 U		
	Plutonium-238	pCi/L		-0.0147 U		
	Plutonium-239/240	pCi/L		0.00736 U		
	Technetium-99	pCi/L		4.41 U		
	Uranium	µg/L		0.131		
	Uranium-233/234	pCi/L		0.05882		
	Uranium-235	pCi/L		0 U		
	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.04402		
WP-02	Americium-241	pCi/L		0.01964 U		
	Neptunium-237	pCi/L		-0.0146 U		
	Plutonium-238	pCi/L		0 U		
	Plutonium-239/240	pCi/L		0.01456 U		
	Technetium-99	pCi/L		4.42 U		
	Uranium	µg/L		0.179 U		
	Uranium-233/234	pCi/L		0.1032		
	Uranium-235	pCi/L		0 U		
	Uranium-236	pCi/L		0.00953 U		
	Uranium-238	pCi/L		0.06008 U		
WP-03	Americium-241	pCi/L	0.009 U	-0.0098 U		
	Neptunium-237	pCi/L	0.0095 U	-0.0111 U		
	Plutonium-238	pCi/L	0.0286 U	0 U		
	Plutonium-239/240	pCi/L	0.0095 U	1.1E-05 U		
	Technetium-99	pCi/L	-2.05 U	-4.64 U		
	Uranium	µg/L	0.0961 U	0.08154 U		
	Uranium-233/234	pCi/L	0.0866	0.05296		
	Uranium-235	pCi/L	0.0097 U	0.01089 U		
	Uranium-236	pCi/L	0 U	0 U		
	Uranium-238	pCi/L	0.0314 U	0.02643 U		
WP-04	Americium-241	pCi/L		-0.0187 U		
	Neptunium-237	pCi/L		0.00698 U		
	Plutonium-238	pCi/L		0.00696 U		
	Plutonium-239/240	pCi/L		7E-06 U		
	Technetium-99	pCi/L		3.94 U		
	Uranium	µg/L		0.1015		
	Uranium-233/234	pCi/L		0.00811 U		
	Uranium-235	pCi/L		0.02 U		

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
WP-04	Uranium-236	pCi/L	-0.009 U			
	Uranium-238	pCi/L	0.03236 U			
X120-03G	Americium-241	pCi/L	0.01004 U			
	Neptunium-237	pCi/L	3.3E-05 U			
	Plutonium-238	pCi/L	-0.0642 U			
	Plutonium-239/240	pCi/L	-0.0161 U			
	Technetium-99	pCi/L	-2.43 U			
	Uranium	µg/L	0.3721			
	Uranium-233/234	pCi/L	0.1317			
	Uranium-235	pCi/L	0.02032 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.1232			
X120-05G	Americium-241	pCi/L	0.01795 U			
	Neptunium-237	pCi/L	-0.023 U			
	Plutonium-238	pCi/L	-0.0076 U			
	Plutonium-239/240	pCi/L	-0.0076 U			
	Technetium-99	pCi/L	5.22 U			
	Uranium	µg/L	0.1437			
	Uranium-233/234	pCi/L	0.1048			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.04827			
X120-06B	Americium-241	pCi/L	0 U			
	Neptunium-237	pCi/L	0.03067 U			
	Plutonium-238	pCi/L	-0.0152 U			
	Plutonium-239/240	pCi/L	0.02297 U			
	Technetium-99	pCi/L	-1.43 U			
	Uranium	µg/L	0.491			
	Uranium-233/234	pCi/L	0.6408			
	Uranium-235	pCi/L	-0.0097 U			
	Uranium-236	pCi/L	0.00876 U			
	Uranium-238	pCi/L	0.1658			
X120-08G	Americium-241	pCi/L	-0.0095 U			
	Neptunium-237	pCi/L	0.04022 U			
	Plutonium-238	pCi/L	0.03026 U			
	Plutonium-239/240	pCi/L	0.0401 U			
	Technetium-99	pCi/L	-3.06 U			
	Uranium	µg/L	0.1049			

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X120-08G	Uranium-233/234	pCi/L		0.01721 U		
	Uranium-235	pCi/L		0.01061 U		
	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.03432 U		
X120-09G	Americium-241	pCi/L		-0.0101 U		
	Neptunium-237	pCi/L		1.6E-05 U		
	Plutonium-238	pCi/L		-0.0391 U		
	Plutonium-239/240	pCi/L		-0.0078 U		
	Technetium-99	pCi/L		1.34 U		
	Uranium	µg/L		0.04675 U		
	Uranium-233/234	pCi/L		0.00790 U		
	Uranium-235	pCi/L		0 U		
	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.01571 U		
X120-10G	Americium-241	pCi/L		0.02533 U		
	Neptunium-237	pCi/L		0.04372 U		
	Plutonium-238	pCi/L		0.05237 U		
	Plutonium-239/240	pCi/L		1.5E-05 U		
	Technetium-99	pCi/L		-0.802 U		
	Uranium	µg/L		0.1424		
	Uranium-233/234	pCi/L		0.03198 U		
	Uranium-235	pCi/L		0 U		
	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.04786		
X120-11G	Americium-241	pCi/L		-0.0088 U		
	Neptunium-237	pCi/L		-0.014 U		
	Plutonium-238	pCi/L		0.00698 U		
	Plutonium-239/240	pCi/L		0.02094 U		
	Technetium-99	pCi/L		6.26 U		
	Uranium	µg/L		0.1489 U		
	Uranium-233/234	pCi/L		0.02554 U		
	Uranium-235	pCi/L		-0.0105 U		
	Uranium-236	pCi/L		0.00942 U		
	Uranium-238	pCi/L		0.05092 U		
X749-04G	Americium-241	pCi/L	0.0209 U			
	Neptunium-237	pCi/L	-0.040 U			
	Plutonium-238	pCi/L	0.0101 U			
	Plutonium-239/240	pCi/L	-0.010 U			

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-04G	Technetium-99	pCi/L	0.0698 U			
	Uranium	µg/L	0.2572			
	Uranium-233/234	pCi/L	0.0932			
	Uranium-235	pCi/L	0.0209 U			
	Uranium-236	pCi/L	0.0094 U			
	Uranium-238	pCi/L	0.0845			
X749-06G	Americium-241	pCi/L		0.01016 U		
	Neptunium-237	pCi/L		-0.0077 U		
	Plutonium-238	pCi/L		0.01546 U		
	Plutonium-239/240	pCi/L		0.00774 U		
	Technetium-99	pCi/L		44.1		
	Uranium	µg/L		0.2089		
	Uranium-233/234	pCi/L		0.04398 U		
	Uranium-235	pCi/L		0 U		
	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.07021		
X749-07G	Americium-241	pCi/L	-0.010 U	0.01775 U		
	Neptunium-237	pCi/L	-0.031 U	0.02657 U		
	Plutonium-238	pCi/L	0.0153 U	0.00883 U		
	Plutonium-239/240	pCi/L	-0.008 U	0.00884 U		
	Technetium-99	pCi/L	94.2	156		
	Uranium	µg/L	0.1698	0.3898		
	Uranium-233/234	pCi/L	0.2094	0.05744 U		
	Uranium-235	pCi/L	0 U	0 U		
	Uranium-236	pCi/L	0.0105 U	0 U		
	Uranium-238	pCi/L	0.057	0.131		
X749-08G	Americium-241	pCi/L	0.0384 U	-0.0096 U		
	Neptunium-237	pCi/L	0.0246 U	-0.0083 U		
	Plutonium-238	pCi/L	0.0163 U	0.02497 U		
	Plutonium-239/240	pCi/L	-0.008 U	7.3E-06 U		
	Technetium-99	pCi/L	2.48 U	11.7		
	Uranium	µg/L	0.1213	0.2174		
	Uranium-233/234	pCi/L	0.1191	0.1626		
	Uranium-235	pCi/L	0.0122 U	0 U		
	Uranium-236	pCi/L	0.011 U	0 U		
	Uranium-238	pCi/L	0.0396 U	0.07305		
X749-09GA	Americium-241	pCi/L	9E-06 U			
	Neptunium-237	pCi/L	0.0241 U			

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-09GA	Plutonium-238	pCi/L	0.0080 U			
	Plutonium-239/240	pCi/L	0.0160 U			
	Technetium-99	pCi/L	10.1			
	Uranium	µg/L	0.053 U			
	Uranium-233/234	pCi/L	0.0713 U			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
X749-10GA	Uranium-238	pCi/L	0.0178 U			
	Americium-241	pCi/L	-0.010 U	0.00952 U		
	Neptunium-237	pCi/L	-0.018 U	-0.0084 U		
	Plutonium-238	pCi/L	0.0178 U	-0.0083 U		
	Plutonium-239/240	pCi/L	0.0089 U	1.7E-05 U		
	Technetium-99	pCi/L	-3.04 U	0.389 U		
	Uranium	µg/L	0.0762 U	0.04617 U		
X749-13G	Uranium-233/234	pCi/L	0.0685 U	0.0935		
	Uranium-235	pCi/L	0 U	0 U		
	Uranium-236	pCi/L	0 U	-0.0086 U		
	Uranium-238	pCi/L	0.0256 U	0.01556 U		
	Americium-241	pCi/L		0.01876 U		
	Neptunium-237	pCi/L		0.00866 U		
	Plutonium-238	pCi/L		0.01726 U		
X749-14B	Plutonium-239/240	pCi/L		0 U		
	Technetium-99	pCi/L		26.9		
	Uranium	µg/L		0.3923		
	Uranium-233/234	pCi/L		0.2212		
	Uranium-235	pCi/L		0.02823 U		
	Uranium-236	pCi/L		-0.0169 U		
	Uranium-238	pCi/L		0.1294		
X749-20G	Technetium-99	pCi/L				-0.79 U
X749-20G	Americium-241	pCi/L	1E-05 U			
	Neptunium-237	pCi/L	8E-06 U			
	Plutonium-238	pCi/L	0.0078 U			
	Plutonium-239/240	pCi/L	8E-06 U			
	Technetium-99	pCi/L	564			
	Uranium	µg/L	0.2116 U			
	Uranium-233/234	pCi/L	0.0592 U			
X749-20G	Uranium-235	pCi/L	0.0243 U			
	Uranium-236	pCi/L	0 U			

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-20G	Uranium-238	pCi/L	0.0689 U			
X749-21G	Americium-241	pCi/L	0.0187 U			
	Neptunium-237	pCi/L	0.0296 U			
	Plutonium-238	pCi/L	1E-05 U			
	Plutonium-239/240	pCi/L	0 U			
	Technetium-99	pCi/L	-5.98 U			
	Uranium	µg/L	0.2041			
	Uranium-233/234	pCi/L	0.0086 U			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0686			
X749-23G	Americium-241	pCi/L	0.0114 U			
	Neptunium-237	pCi/L	-0.026 U			
	Plutonium-238	pCi/L	0.0435			
	Plutonium-239/240	pCi/L	0.0087 U			
	Technetium-99	pCi/L	6.11 U			
	Uranium	µg/L	0.2787			
	Uranium-233/234	pCi/L	0.103			
	Uranium-235	pCi/L	0.0127 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0925			
X749-24G	Americium-241	pCi/L	0 U			
	Neptunium-237	pCi/L	-0.008 U			
	Plutonium-238	pCi/L	0 U			
	Plutonium-239/240	pCi/L	8E-06 U			
	Technetium-99	pCi/L	2.43 U			
	Uranium	µg/L	0.0284 U			
	Uranium-233/234	pCi/L	0.0086 U			
	Uranium-235	pCi/L	0.0106 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0086 U			
X749-25G	Americium-241	pCi/L	0.0356 U			
	Neptunium-237	pCi/L	0.0081 U			
	Plutonium-238	pCi/L	0.0081 U			
	Plutonium-239/240	pCi/L	0.0241 U			
	Technetium-99	pCi/L	7.51 U			
	Uranium	µg/L	0.1138 U			
	Uranium-233/234	pCi/L	0.0862 U			

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-25G	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0382 U			
X749-35G	Americium-241	pCi/L	1E-05 U			
	Neptunium-237	pCi/L	-0.036 U			
	Plutonium-238	pCi/L	0.0273 U			
	Plutonium-239/240	pCi/L	-0.009 U			
	Technetium-99	pCi/L	6.21 U			
	Uranium	µg/L	0.1124			
	Uranium-233/234	pCi/L	0.1197			
	Uranium-235	pCi/L	0.0114 U			
	Uranium-236	pCi/L	0 U			
X749-37G	Uranium-238	pCi/L	0.0368 U			
	Americium-241	pCi/L		9.2E-06 U		
	Neptunium-237	pCi/L		-0.0083 U		
	Plutonium-238	pCi/L		0.03299 U		
	Plutonium-239/240	pCi/L		-0.0082 U		
	Technetium-99	pCi/L		5.41 U		
	Uranium	µg/L		-0.0025 U		
	Uranium-233/234	pCi/L		0.0235 U		
	Uranium-235	pCi/L		-0.0097 U		
X749-40G	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		7.8E-06 U		
	Americium-241	pCi/L		9.7E-06 U		
	Neptunium-237	pCi/L		-0.0328 U		
	Plutonium-238	pCi/L		0.0409 U		
	Plutonium-239/240	pCi/L		8.2E-06 U		
	Technetium-99	pCi/L		6.91 U		
	Uranium	µg/L		1.581		
	Uranium-233/234	pCi/L		0.4159		
X749-41G	Uranium-235	pCi/L		0.00950 U		
	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.5303		
	Americium-241	pCi/L		0.00927 U		
	Neptunium-237	pCi/L		-0.0091 U		
	Plutonium-238	pCi/L		0.04567 U		
	Plutonium-239/240	pCi/L		0 U		
	Technetium-99	pCi/L		2.28 U		

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-41G	Uranium	$\mu\text{g/L}$		0.1453		
	Uranium-233/234	pCi/L		0.00804 U		
	Uranium-235	pCi/L		0.00988 U		
	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.04795		
X749-42G	Americium-241	pCi/L		-0.0108 U		
	Neptunium-237	pCi/L		-0.0100 U		
	Plutonium-238	pCi/L		0.01003 U		
	Plutonium-239/240	pCi/L		0.01001 U		
	Technetium-99	pCi/L		0.962 U		
	Uranium	$\mu\text{g/L}$		0.1403 U		
	Uranium-233/234	pCi/L		1.9E-05 U		
	Uranium-235	pCi/L		0 U		
	Uranium-236	pCi/L		0.01045 U		
	Uranium-238	pCi/L		0.04709 U		
X749-44G	Americium-241	pCi/L		-0.0097 U		
	Neptunium-237	pCi/L		0.00888 U		
	Plutonium-238	pCi/L		-0.0088 U		
	Plutonium-239/240	pCi/L		-0.0177 U		
	Technetium-99	pCi/L		26.2		
	Uranium	$\mu\text{g/L}$		0.05946 U		
	Uranium-233/234	pCi/L		0.05406		
	Uranium-235	pCi/L		0.02224 U		
	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.01799 U		
X749-45G	Americium-241	pCi/L		-0.0089 U		
	Neptunium-237	pCi/L		-0.0076 U		
	Plutonium-238	pCi/L		0.00761 U		
	Plutonium-239/240	pCi/L		7.6E-06 U		
	Technetium-99	pCi/L		3.2 U		
	Uranium	$\mu\text{g/L}$		0.2203		
	Uranium-233/234	pCi/L		0.08902		
	Uranium-235	pCi/L		0 U		
	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.07404		
X749-54B	Americium-241	pCi/L	-0.027 U			
	Neptunium-237	pCi/L	-0.010 U			
	Plutonium-238	pCi/L	0.0204 U			

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-54B	Plutonium-239/240	pCi/L	5E-06 U			
	Technetium-99	pCi/L	4.47 U			
	Uranium	µg/L	0.0002 U			
	Uranium-233/234	pCi/L	2E-05 U			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0.0109 U			
X749-57G	Uranium-238	pCi/L	1E-05 U			
	Americium-241	pCi/L		0 U		
	Neptunium-237	pCi/L		-0.0084 U		
	Plutonium-238	pCi/L		8.4E-06 U		
	Plutonium-239/240	pCi/L		-0.0168 U		
	Technetium-99	pCi/L		-4.76 U		
	Uranium	µg/L		1.098		
	Uranium-233/234	pCi/L		0.339		
	Uranium-235	pCi/L		-0.0097 U		
	Uranium-236	pCi/L		0 U		
X749-64B	Uranium-238	pCi/L		0.3698		
	Technetium-99	pCi/L				0.39 U
X749-67G	Americium-241	pCi/L		-0.0327 U		
	Neptunium-237	pCi/L		0 U		
	Plutonium-238	pCi/L		0.02278 U		
	Plutonium-239/240	pCi/L		7.6E-06 U		
	Technetium-99	pCi/L		59.6		
	Uranium	µg/L		0.0989		
	Uranium-233/234	pCi/L		0.06481		
	Uranium-235	pCi/L		0.00999 U		
	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.03234 U		
X749-68G	Americium-241	pCi/L				0 U
	Neptunium-237	pCi/L				-0.00667 U
	Plutonium-238	pCi/L				0.02672 U
	Plutonium-239/240	pCi/L				6.67E-06 U
	Technetium-99	pCi/L				-2.5 U
	Uranium	µg/L				-0.01913 U
	Uranium-233/234	pCi/L				0.01292 U
	Uranium-235	pCi/L				0 U
	Uranium-236	pCi/L				0 U
	Uranium-238	pCi/L				-0.00643 U

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-96G	Americium-241	pCi/L	0 U	8.6E-06 U		
	Neptunium-237	pCi/L	-0.019 U	-0.0313 U		
	Plutonium-238	pCi/L	3E-05 U	0.01565 U		
	Plutonium-239/240	pCi/L	2E-05 U	-0.0235 U		
	Technetium-99	pCi/L	5.64 U	3.38 U		
	Uranium	$\mu$ g/L	0.101	0.09358		
	Uranium-233/234	pCi/L	0.1207	0.02303 U		
	Uranium-235	pCi/L	0.0199 U	0.00946 U		
	Uranium-236	pCi/L	0.0089 U	0 U		
	Uranium-238	pCi/L	0.0321 U	0.0306 U		
X749-97G	Americium-241	pCi/L	0.0097 U	0.01065 U		
	Neptunium-237	pCi/L	-0.01 U	9.3E-06 U		
	Plutonium-238	pCi/L	0.0096 U	0.01853 U		
	Plutonium-239/240	pCi/L	0.0096 U	0.00926 U		
	Technetium-99	pCi/L	-1.06 U	5.27 U		
	Uranium	$\mu$ g/L	6.918	5.616		
	Uranium-233/234	pCi/L	2.301	2.016		
	Uranium-235	pCi/L	0.1113	0.07107		
	Uranium-236	pCi/L	0.02 U	0 U		
	Uranium-238	pCi/L	2.315	1.881		
X749-98G	Americium-241	pCi/L	0.0097 U	0.0088 U		
	Neptunium-237	pCi/L	-0.016 U	-0.0336 U		
	Plutonium-238	pCi/L	0.0158 U	0.01677 U		
	Plutonium-239/240	pCi/L	-0.024 U	0 U		
	Technetium-99	pCi/L	-3.21 U	0.413 U		
	Uranium	$\mu$ g/L	0.0031 U	0.0492 U		
	Uranium-233/234	pCi/L	0.0665 U	0.08251		
	Uranium-235	pCi/L	0.0117 U	0 U		
	Uranium-236	pCi/L	0 U	0.00914 U		
	Uranium-238	pCi/L	9E-06 U	0.01648 U		
X749-99M	Americium-241	pCi/L	0.0091 U	0.00911 U		
	Neptunium-237	pCi/L	-0.009 U	0.03089 U		
	Plutonium-238	pCi/L	0.018 U	-0.0077 U		
	Plutonium-239/240	pCi/L	0.0269 U	0.0077 U		
	Technetium-99	pCi/L	-0.586 U	5.13 U		
	Uranium	$\mu$ g/L	0.0289 U	0.2076		
	Uranium-233/234	pCi/L	0.0349 U	0.5395		
	Uranium-235	pCi/L	0.0108 U	0.02773 U		

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-99M	Uranium-236	pCi/L	0.0097 U	-0.0083 U		
	Uranium-238	pCi/L	0.0087 U	0.06731		
X749-100M	Americium-241	pCi/L	0.0093 U	0.00870 U		
	Neptunium-237	pCi/L	-0.009 U	-0.0171 U		
	Plutonium-238	pCi/L	-0.009 U	-0.0085 U		
	Plutonium-239/240	pCi/L	0 U	0.00855 U		
	Technetium-99	pCi/L	3.59 U	1.3 U		
	Uranium	µg/L	0.0949 U	0.3332		
	Uranium-233/234	pCi/L	0.082	0.3421		
	Uranium-235	pCi/L	0.0126 U	-0.01055 U		
	Uranium-236	pCi/L	0.0114 U	0.00947 U		
	Uranium-238	pCi/L	0.0307 U	0.111		
X749-101M	Americium-241	pCi/L	1E-05 U	0.01837 U		
	Neptunium-237	pCi/L	-0.020 U	-0.0083 U		
	Plutonium-238	pCi/L	0.0101 U	-0.0083 U		
	Plutonium-239/240	pCi/L	0.0301 U	8.3E-06 U		
	Technetium-99	pCi/L	-1.52 U	0.0428 U		
	Uranium	µg/L	0.1542	0.1886 U		
	Uranium-233/234	pCi/L	0.0508 U	4E-05 U		
	Uranium-235	pCi/L	0.0125 U	0 U		
	Uranium-236	pCi/L	0 U	-0.0088 U		
	Uranium-238	pCi/L	0.0507	0.06341 U		
X749-102G	Americium-241	pCi/L	0.0291 U	0.01886 U		
	Neptunium-237	pCi/L	0 U	1.9E-05 U		
	Plutonium-238	pCi/L	2E-05 U	0.00946 U		
	Plutonium-239/240	pCi/L	-0.011 U	9.5E-06 U		
	Technetium-99	pCi/L	-1.44 U	2.59 U	5.2	1 U
	Uranium	µg/L	0.0863 U	0.02656 U		
	Uranium-233/234	pCi/L	0.0722 U	4.5E-05 U		
	Uranium-235	pCi/L	0.0223 U	0 U		
	Uranium-236	pCi/L	0 U	0 U		
	Uranium-238	pCi/L	0.0270 U	0.00892 U		
X749-103G	Americium-241	pCi/L	0.0095 U	0.01068 U		
	Neptunium-237	pCi/L	2E-05 U	-0.0286 U		
	Plutonium-238	pCi/L	0.028 U	0 U		
	Plutonium-239/240	pCi/L	0.0187 U	0 U		
	Technetium-99	pCi/L	-6.13 U	-5.47 U	0.9 U	-0.39 U
	Uranium	µg/L	0.0843 U	0.158 U		

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-103G	Uranium-233/234	pCi/L	0.0095 U	0.05318 U		
	Uranium-235	pCi/L	0 U	0 U		
	Uranium-236	pCi/L	0 U	0 U		
	Uranium-238	pCi/L	0.0283 U	0.05307 U		
X749-104G	Americium-241	pCi/L	0.0096 U	0 U		
	Neptunium-237	pCi/L	0.0077 U	-0.0171 U		
	Plutonium-238	pCi/L	0.0230 U	0.01703 U		
	Plutonium-239/240	pCi/L	-0.015 U	1.7E-05 U		
	Technetium-99	pCi/L	-1.49 U	-6.42 U	1 U	-1.22 U
	Uranium	µg/L	0.0288 U	-0.0286 U		
	Uranium-233/234	pCi/L	0.0437 U	0.02625 U		
	Uranium-235	pCi/L	0.0108 U	-0.0108 U		
	Uranium-236	pCi/L	0 U	0.00969 U		
X749-105G	Uranium-238	pCi/L	0.0087 U	-0.0087 U		
	Americium-241	pCi/L	0.0093 U	-0.0102 U		
	Neptunium-237	pCi/L	0.0103 U	0.01536 U		
	Plutonium-238	pCi/L	0.0205 U	0 U		
	Plutonium-239/240	pCi/L	2E-05 U	0.02296 U		
	Technetium-99	pCi/L	-0.671 U	-8.54 U	-0.4 U	-0.008 U
	Uranium	µg/L	0.1004 U	3.4E-05 U		
	Uranium-233/234	pCi/L	0.0339 U	0.05171 U		
	Uranium-235	pCi/L	0 U	0 U		
X749-106G	Uranium-236	pCi/L	-0.012 U	0 U		
	Uranium-238	pCi/L	0.0338 U	8.6E-06 U		
	Americium-241	pCi/L		0.00953 U		
	Neptunium-237	pCi/L		-0.0074 U		
	Plutonium-238	pCi/L		0.01491 U		
	Plutonium-239/240	pCi/L		7.4E-06 U		
	Technetium-99	pCi/L		6.02 U		
	Uranium	µg/L		0.02487 U		
	Uranium-233/234	pCi/L		0.06682		
X749-107G	Uranium-235	pCi/L		0 U		
	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.00835 U		
	Americium-241	pCi/L		0.00939 U		
	Neptunium-237	pCi/L		-0.0264 U		
X749-107G	Plutonium-238	pCi/L		0.02633 U		
	Plutonium-239/240	pCi/L		-0.0088 U		

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-107G	Technetium-99	pCi/L		6.58 U		
	Uranium	µg/L		0.1165		
	Uranium-233/234	pCi/L		0.03136 U		
	Uranium-235	pCi/L		0 U		
	Uranium-236	pCi/L		0.00868 U		
	Uranium-238	pCi/L		0.03909		
X749-108G	Americium-241	pCi/L		0.00858 U		
	Neptunium-237	pCi/L		-0.0384 U		
	Plutonium-238	pCi/L		0.00958 U		
	Plutonium-239/240	pCi/L		1.9E-05 U		
	Technetium-99	pCi/L		9.92		
	Uranium	µg/L		0.04845 U		
	Uranium-233/234	pCi/L		0.03867 U		
	Uranium-235	pCi/L		0.00955 U		
	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.01543 U		
X749-109G	Americium-241	pCi/L		-0.0095 U		
	Neptunium-237	pCi/L		-0.0222 U		
	Plutonium-238	pCi/L		2.2E-05 U		
	Plutonium-239/240	pCi/L		0.01112 U		
	Technetium-99	pCi/L		-0.783 U		0.86 U
	Uranium	µg/L		0.1689 U		
	Uranium-233/234	pCi/L		0.1119		
	Uranium-235	pCi/L		0.00986 U		
	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.05586 U		
X749-110G	Americium-241	pCi/L		0.00914 U		
	Neptunium-237	pCi/L		9E-06 U		
	Plutonium-238	pCi/L		0.03585 U		
	Plutonium-239/240	pCi/L		0.01793 U		
	Technetium-99	pCi/L		14.9		177
	Uranium	µg/L		0.424		
	Uranium-233/234	pCi/L		0.1501		
	Uranium-235	pCi/L		0.02314 U		
	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.1404		
X749-111G	Americium-241	pCi/L		1.9E-05 U		
	Neptunium-237	pCi/L		0 U		

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-111G	Plutonium-238	pCi/L		0.03467 U		
	Plutonium-239/240	pCi/L		0.01734 U		
	Technetium-99	pCi/L		-0.58 U		2.23
	Uranium	µg/L		0.07893 U		
	Uranium-233/234	pCi/L		0.04942 U		
	Uranium-235	pCi/L		0.02031 U		
	Uranium-236	pCi/L		0.00912 U		
	Uranium-238	pCi/L		0.02466 U		
	Americium-241	pCi/L		1.0E-05 U		
X749-112G	Neptunium-237	pCi/L		0.00882 U		
	Plutonium-238	pCi/L		0.01759 U		
	Plutonium-239/240	pCi/L		0 U		
	Technetium-99	pCi/L		-0.546 U		3.19
	Uranium	µg/L		0.2861		
	Uranium-233/234	pCi/L		0.1736		
	Uranium-235	pCi/L		0.01071 U		
	Uranium-236	pCi/L		-0.0192 U		
	Uranium-238	pCi/L		0.09528		
X749-113G	Americium-241	pCi/L		0.02899 U		0.006886 U
	Neptunium-237	pCi/L		8.3E-06 U		0.005923 U
	Plutonium-238	pCi/L		1.6E-05 U		0.02362 U
	Plutonium-239/240	pCi/L		-0.0165 U		0 U
	Technetium-99	pCi/L		64.2		62.4
	Uranium	µg/L		0.1933		0.1295
	Uranium-233/234	pCi/L		0.05775 U		0.056 U
	Uranium-235	pCi/L		-0.0102 U		7.67E-06 U
	Uranium-236	pCi/L		0 U		0.006891 U
X749-114G	Uranium-238	pCi/L		0.06585		0.04346
	Americium-241	pCi/L		2.3E-05 U		0.00802 U
	Neptunium-237	pCi/L		0.00934 U		-0.0262 U
	Plutonium-238	pCi/L		0.00932 U		-0.01961 U
	Plutonium-239/240	pCi/L		-0.0093 U		0.006552 U
	Technetium-99	pCi/L		0.378 U		1.81 U
	Uranium	µg/L		11.7		14.73
	Uranium-233/234	pCi/L		4.108		4.865
	Uranium-235	pCi/L		0.1628		0.2697
X749-114G	Uranium-236	pCi/L		0 U		0.006918 U
	Uranium-238	pCi/L		3.918		4.924

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-BG6G	Americium-241	pCi/L	0.0085 U			
	Neptunium-237	pCi/L	0.0088 U			
	Plutonium-238	pCi/L	0.0088 U			
	Plutonium-239/240	pCi/L	0 U			
	Technetium-99	pCi/L	4.98 U			
	Uranium	µg/L	0.2781			
	Uranium-233/234	pCi/L	0.0781			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0935			
X749-BG9G	Americium-241	pCi/L	0.0176 U			
	Neptunium-237	pCi/L	-0.061 U			
	Plutonium-238	pCi/L	0.0087 U			
	Plutonium-239/240	pCi/L	-0.026 U			
	Technetium-99	pCi/L	13.2			
	Uranium	µg/L	9E-06 U			
	Uranium-233/234	pCi/L	0.0559 U			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0 U			
X749-PZ02G	Americium-241	pCi/L		1.0E-05 U		
	Neptunium-237	pCi/L		0.02279 U		
	Plutonium-238	pCi/L		-0.0076 U		
	Plutonium-239/240	pCi/L		0.00758 U		
	Technetium-99	pCi/L		-2.02 U		
	Uranium	µg/L		0.04292 U		
	Uranium-233/234	pCi/L		0.00723 U		
	Uranium-235	pCi/L		0 U		
	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.01442 U		
X749-PZ03G	Americium-241	pCi/L	0 U	2.7E-05 U		
	Neptunium-237	pCi/L	-0.072 U	-0.0083 U		
	Plutonium-238	pCi/L	0.0359 U	0 U		
	Plutonium-239/240	pCi/L	0.0269 U	-0.0165 U		
	Technetium-99	pCi/L	1.17 U	1.88 U		
	Uranium	µg/L	0.053 U	0.02304 U		
	Uranium-233/234	pCi/L	0.0478 U	0.07793		
	Uranium-235	pCi/L	0.0197 U	-0.0107 U		

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-PZ03G	Uranium-236	pCi/L	0.0265 U	0.00959 U		
	Uranium-238	pCi/L	0.0159 U	0.00864 U		
X749-PZ04G	Americium-241	pCi/L	0 U	-0.0095 U		
	Neptunium-237	pCi/L	0 U	1.3E-05 U		
X749-PZ04G	Plutonium-238	pCi/L	0.0247 U	2.6E-05 U		
	Plutonium-239/240	pCi/L	8E-06 U	0.01315 U		
X749-PZ04G	Technetium-99	pCi/L	30.5	36.5		
	Uranium	µg/L	0.1687 U	0.3317		
X749-PZ04G	Uranium-233/234	pCi/L	0.0325 U	0.08775		
	Uranium-235	pCi/L	0 U	0 U		
X749-PZ04G	Uranium-236	pCi/L	0 U	0 U		
	Uranium-238	pCi/L	0.0567 U	0.1115		
X749-PZ05G	Americium-241	pCi/L	0 U	0 U		
	Neptunium-237	pCi/L	-0.039 U	-0.0177 U		
X749-PZ05G	Plutonium-238	pCi/L	0.0386 U	1.8E-05 U		
	Plutonium-239/240	pCi/L	0 U	0.01767 U		
X749-PZ05G	Technetium-99	pCi/L	-0.339 U	6.23 U		
	Uranium	µg/L	0.7108	1.571		
X749-PZ05G	Uranium-233/234	pCi/L	0.3111	0.6801		
	Uranium-235	pCi/L	0 U	0.02097 U		
X749-PZ05G	Uranium-236	pCi/L	0 U	0.00942 U		
	Uranium-238	pCi/L	0.2388	0.526		
X749-PZ06G	Americium-241	pCi/L		2E-05 U		
	Neptunium-237	pCi/L		0 U		
X749-PZ06G	Plutonium-238	pCi/L		1.8E-05 U		
	Plutonium-239/240	pCi/L		0.00917 U		
X749-PZ06G	Technetium-99	pCi/L		3.02 U		
	Uranium	µg/L		0.07092 U		
X749-PZ06G	Uranium-233/234	pCi/L		0.06607		
	Uranium-235	pCi/L		-0.0102 U		
X749-PZ06G	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.02474 U		
X749-PZ08G	Americium-241	pCi/L		0.00903 U		
	Neptunium-237	pCi/L		0.0072 U		
X749-PZ08G	Plutonium-238	pCi/L		-0.0072 U		
	Plutonium-239/240	pCi/L		0.00717 U		
X749-PZ08G	Technetium-99	pCi/L		7.45 U		
	Uranium	µg/L		0.3144		

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-PZ08G	Uranium-233/234	pCi/L		0.1131		
	Uranium-235	pCi/L		0.00996 U		
	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.1048		
X749-PZ09G	Americium-241	pCi/L	0.0213 U			
	Neptunium-237	pCi/L	-0.008 U			
	Plutonium-238	pCi/L	0.0169 U			
	Plutonium-239/240	pCi/L	-0.008 U			
	Technetium-99	pCi/L	3760			
	Uranium	µg/L	0.2953			
	Uranium-233/234	pCi/L	0.1574			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0.0092 U			
	Uranium-238	pCi/L	0.0992			
X749-PZ10G	Americium-241	pCi/L	-0.009 U			
	Neptunium-237	pCi/L	-0.026 U			
	Plutonium-238	pCi/L	0.0175 U			
	Plutonium-239/240	pCi/L	0.0262 U			
	Technetium-99	pCi/L	52.1			
	Uranium	µg/L	0.0757 U			
	Uranium-233/234	pCi/L	0.1189			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0254 U			
X749-PZ11G	Americium-241	pCi/L	-0.019 U			
	Neptunium-237	pCi/L	8E-06 U			
	Plutonium-238	pCi/L	0.0076 U			
	Plutonium-239/240	pCi/L	0.0076 U			
	Technetium-99	pCi/L	2.12 U			
	Uranium	µg/L	0.492			
	Uranium-233/234	pCi/L	0.2236			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.1653			
X749-PZ13G	Americium-241	pCi/L	0.01 U			
	Neptunium-237	pCi/L	-0.008 U			
	Plutonium-238	pCi/L	0.0158 U			
	Plutonium-239/240	pCi/L	-0.032 U			

**Table 4.2. Results for radionuclides at the X-749/X-120/PK Landfill (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749-PZ13G	Technetium-99	pCi/L	19.3			
	Uranium	µg/L	0.4741			
	Uranium-233/234	pCi/L	0.2941			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
X749-PZ14G	Uranium-238	pCi/L	0.1593			
	Americium-241	pCi/L	0.0101 U			
	Neptunium-237	pCi/L	-0.009 U			
	Plutonium-238	pCi/L	0.0170 U			
	Plutonium-239/240	pCi/L	-0.008 U			
	Technetium-99	pCi/L	5.61 U			
	Uranium	µg/L	0.4626			
	Uranium-233/234	pCi/L	0.2283			
	Uranium-235	pCi/L	0.0101 U			
X749-WPW	Uranium-236	pCi/L	-0.009 U			
	Uranium-238	pCi/L	0.1546			
	Americium-241	pCi/L	8.7E-06 U			
	Neptunium-237	pCi/L	-0.0080 U			
	Plutonium-238	pCi/L	1.6E-05 U			
	Plutonium-239/240	pCi/L	0.00802 U			
	Technetium-99	pCi/L	6620			
	Uranium	µg/L	1.525			
	Uranium-233/234	pCi/L	0.4261			
X749-X120	Uranium-235	pCi/L	0.04122 U			
	Uranium-236	pCi/L	0.00925 U			
	Uranium-238	pCi/L	0.5086			

**Table 4.3. Volatile organic compounds detected at the Quadrant I Groundwater Investigative Area**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X230K-11G	Acetone	µg/L			2.2 J	
X230K-14G	cis-1,2-Dichloroethene	µg/L			0.29 J	
	Trichloroethene	µg/L			7.6	
X230K-15G	Acetone	µg/L			15	
	cis-1,2-Dichloroethene	µg/L			0.2 J	
	Trichloroethene	µg/L			2	
X231A-01G	1,1,1-Trichloroethane	µg/L			0.43 J	
	1,1-Dichloroethane	µg/L			0.87 J	
	1,1-Dichloroethene	µg/L			1.6 J	
	Acetone	µg/L			6.5 J	
	Chloroform	µg/L			0.79 J	
	cis-1,2-Dichloroethene	µg/L			2.2	
	Trichloroethene	µg/L			58	
X231A-04G	1,1,1-Trichloroethane	µg/L			2.1	
	1,1-Dichloroethane	µg/L			0.38 J	
	1,1-Dichloroethene	µg/L			7	
	Chloroform	µg/L			0.6 J	
	cis-1,2-Dichloroethene	µg/L			1.3 J	
	Trichloroethene	µg/L			41	
X231B-02G	1,1-Dichloroethane	µg/L	40 U		0.49 J	
	1,1-Dichloroethene	µg/L	40 U		0.63 J	
	Chloroform	µg/L	35 J		17	
	cis-1,2-Dichloroethene	µg/L	26 J		14	
	trans-1,2-Dichloroethene	µg/L	10 U		0.75 J	
	Trichloroethene	µg/L	650		230	
X231B-03G	1,1,1-Trichloroethane	µg/L	21 J		12	
	1,1,2-Trichloroethane	µg/L	40 U		0.88 J	
	1,1-Dichloroethane	µg/L	29 J		11	
	1,1-Dichloroethene	µg/L	120		49	
	1,2-Dichloroethane	µg/L	40 U		0.37 J	
	Chloroform	µg/L	6.3 J		2.9	
	cis-1,2-Dichloroethene	µg/L	19 J			
	Dichlorodifluoromethane	µg/L			0.96 J	
	Methylene chloride	µg/L	40 U		1.1 BJ	
	Tetrachloroethene	µg/L	40 U		1.1 J	
	trans-1,2-Dichloroethene	µg/L	10 U		0.41 J	
	Trichloroethene	µg/L	690		390	
X231B-04G	1,1-Dichloroethene	µg/L	20 U		0.2 J	

**Table 4.3. Volatile organic compounds detected at the Quadrant I Groundwater Investigative Area  
(continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X231B-04G	Chloroform	µg/L	5.7 J		5.9	
	cis-1,2-Dichloroethene	µg/L	15 J		17	
	Methylene chloride	µg/L	20 U		0.4 BJ	
	Tetrachloroethene	µg/L	20 U		0.22 J	
	trans-1,2-Dichloroethene	µg/L	5 U		0.57 J	
	Trichloroethene	µg/L	290		260	
X231B-06G	1,1,1-Trichloroethane	µg/L	130		200	
	1,1,2-Trichloroethane	µg/L	8 U		5.9	
	1,1-Dichloroethane	µg/L	44		110	
	1,1-Dichloroethene	µg/L	100		410	
	1,2-Dichloroethane	µg/L	8 U		6.9	
	Benzene	µg/L	8 U		0.37 J	
	Chloroethane	µg/L	8 U		0.41 J	
	Chloroform	µg/L	8 U		1.5	
	cis-1,2-Dichloroethene	µg/L	1.2 J			
	Methylene chloride	µg/L	8 U		0.78 BJ	
	Tetrachloroethene	µg/L	8 U		3.7	
	trans-1,2-Dichloroethene	µg/L	2 U		0.49 J	
X231B-07G	Trichloroethene	µg/L	58		280	
	Chloroform	µg/L			2.4	
	cis-1,2-Dichloroethene	µg/L			9.5	
	Tetrachloroethene	µg/L			0.32 J	
	trans-1,2-Dichloroethene	µg/L			0.21 J	
X231B-08G	Trichloroethene	µg/L			96	
	1,1,1-Trichloroethane	µg/L	1.5 J		2.1	
	1,1-Dichloroethene	µg/L	4.7		5	
	Chloromethane	µg/L	2 U		0.3 J	
	cis-1,2-Dichloroethene	µg/L	0.23 J		0.2 J	
X231B-11G	Trichloroethene	µg/L	32		27	
	1,1,1-Trichloroethane	µg/L			5.4	
	1,1-Dichloroethane	µg/L			0.26 J	
	1,1-Dichloroethene	µg/L			13	
	cis-1,2-Dichloroethene	µg/L			0.26 J	
X231B-12G	Trichloroethene	µg/L			2.1	
	1,1,1-Trichloroethane	µg/L	5.9		4.9	
	1,1-Dichloroethane	µg/L	0.3 J		0.32 J	
	1,1-Dichloroethene	µg/L	18		11	
	cis-1,2-Dichloroethene	µg/L	0.25 J		0.25 J	

**Table 4.3. Volatile organic compounds detected at the Quadrant I Groundwater Investigative Area  
(continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X231B-12G	Methylene chloride	µg/L	0.35 BJ		2 U	
	Trichloroethene	µg/L	13		12	
X231B-14G	1,1,1-Trichloroethane	µg/L	9.5 J		7.3	
	1,1-Dichloroethane	µg/L	20 U		1.8 J	
	1,1-Dichloroethene	µg/L	60		43	
	Chloroform	µg/L	2 J		1.8 J	
	cis-1,2-Dichloroethene	µg/L	11 J		9.4	
	Methylene chloride	µg/L	13 BJ		2 U	
	Trichloroethene	µg/L	210		200	
X231B-15G	cis-1,2-Dichloroethene	µg/L	0.99 J		1 J	
	Methylene chloride	µg/L	0.38 BJ		2 U	
	trans-1,2-Dichloroethene	µg/L	0.21 J		0.23 J	
	Trichloroethene	µg/L	1.6 J		1.7 J	
X231B-16G	1,1,1-Trichloroethane	µg/L	2.2		2.1	
	1,1-Dichloroethane	µg/L	0.29 J		0.37 J	
	1,1-Dichloroethene	µg/L	10		8.2	
	Chloroform	µg/L	2 U		0.16 J	
	cis-1,2-Dichloroethene	µg/L	0.25 J		0.25 J	
	Methylene chloride	µg/L	0.36 BJ		2 U	
	Trichloroethene	µg/L	0.64 J		0.61 J	
X231B-19G	1,1,1-Trichloroethane	µg/L			0.38 J	
	1,1-Dichloroethane	µg/L			0.5 J	
	1,1-Dichloroethene	µg/L			5.2	
X231B-20G	Chloroform	µg/L	0.46 J		0.64 J	
	cis-1,2-Dichloroethene	µg/L	0.89 J		1.2 J	
	Trichloroethene	µg/L	73		110	
X231B-23G	1,1,1-Trichloroethane	µg/L	1.1 J		0.89 J	
	1,1-Dichloroethane	µg/L	2 U		0.2 J	
	1,1-Dichloroethene	µg/L	5.3		4	
	cis-1,2-Dichloroethene	µg/L	0.23 J		0.24 J	
	Methylene chloride	µg/L	0.37 BJ		2 U	
	Trichloroethene	µg/L	2		2.1	
X231B-24B	Trichloroethene	µg/L			0.37 J	
X231B-28G	cis-1,2-Dichloroethene	µg/L	0.23 J		0.3 J	
	Trichloroethene	µg/L	0.91 J		1.2 J	
X231B-29G	Chloroform	µg/L			0.75 J	
	cis-1,2-Dichloroethene	µg/L			2.1	
	Tetrachloroethene	µg/L			0.45 J	

**Table 4.3. Volatile organic compounds detected at the Quadrant I Groundwater Investigative Area  
(continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X231B-29G	Trichloroethene	µg/L			84	
X231B-32B	Trichloroethene	µg/L			0.22 J	
X231B-36G	1,1-Dichloroethene	µg/L			0.32 J	
	cis-1,2-Dichloroethene	µg/L			1 J	
	Trichloroethene	µg/L			86	
X231B-37G	1,1-Dichloroethane	µg/L	3.8		5.2	
	1,1-Dichloroethene	µg/L	5.5		5.2	
	Benzene	µg/L	0.22 J		0.28 J	
	Chloroethane	µg/L	2 U		0.55 J	
	cis-1,2-Dichloroethene	µg/L	10		10	
	trans-1,2-Dichloroethene	µg/L	2.2		1.9	
	Trichloroethene	µg/L	29		31	
	Vinyl chloride	µg/L	0.58 J		0.71 J	
X231B-38G	1,1,1-Trichloroethane	µg/L			1.5 J	
	1,1-Dichloroethane	µg/L			0.21 J	
	1,1-Dichloroethene	µg/L			2.2	
	1,2-Dichlorobenzene	µg/L			0.27 J	
	cis-1,2-Dichloroethene	µg/L			0.6 J	
	Trichloroethene	µg/L			0.91 J	
X231B-39G	1,1-Dichloroethane	µg/L			0.17 J	
	1,1-Dichloroethene	µg/L			0.27 J	
	Trichloroethene	µg/L			0.2 J	
X326-09G	Bromodichloromethane	µg/L	400 U		10 J	
	Chloroform	µg/L	330 J		300	
	cis-1,2-Dichloroethene	µg/L	29 J		34 J	
	Methylene chloride	µg/L	260 BJ		40 U	
	Trichloroethene	µg/L	7300		7500	
X326-10G	Chloroform	µg/L	0.76 J		0.28 J	
	cis-1,2-Dichloroethene	µg/L	1.7 J		1.3 J	
	Methylene chloride	µg/L	0.36 BJ		2 U	
	Trichloroethene	µg/L	15		11	
X626-07G	1,1-Dichloroethene	µg/L	40 U		0.75 J	
	Chloroform	µg/L	3.3 J		6.1	
	cis-1,2-Dichloroethene	µg/L	40 U		1.1 J	
	Methylene chloride	µg/L	27 BJ		4 U	
	Trichloroethene	µg/L	380		280	
X710-01G	cis-1,2-Dichloroethene	µg/L			0.48 J	
	Trichloroethene	µg/L			14	

**Table 4.3. Volatile organic compounds detected at the Quadrant I Groundwater Investigative Area  
(continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749A-01G	Benzene	µg/L		0.33 J		
	Toluene	µg/L		0.64 J		
	Trichloroethene	µg/L		1.7 J		
X760-02G	Trichloroethene	µg/L			0.96 J	
X760-03G	1,1-Dichloroethene	µg/L			0.76 J	
	Chloroform	µg/L			0.64 J	
	cis-1,2-Dichloroethene	µg/L			5.8	
	Trichloroethene	µg/L			470	
X760-07G	Chloroform	µg/L			2.7 J	
	cis-1,2-Dichloroethene	µg/L			6.3	
	Trichloroethene	µg/L			500	
X770-MW17G	1,1-Dichloroethene	µg/L	400 U		3 J	
	Chloroform	µg/L	400 U		3.8 J	
	cis-1,2-Dichloroethene	µg/L	320 J		430	
	trans-1,2-Dichloroethene	µg/L	100 U		3.1 J	
	Trichloroethene	µg/L	5900		6600	

**Table 4.4. Results for radionuclides at the Quadrant I Groundwater Investigative Area**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X230K-11G	Technetium-99	pCi/L			0.4 U	
X230K-14G	Technetium-99	pCi/L			0.5 U	
X230K-15G	Technetium-99	pCi/L			-0.2 U	
X231A-01G	Technetium-99	pCi/L			5.8	
X231A-04G	Technetium-99	pCi/L			0.08 U	
X231B-02G	Americium-241	pCi/L	0.0097 U			
	Neptunium-237	pCi/L	-0.007 U			
	Plutonium-238	pCi/L	0.0068 U			
	Plutonium-239/240	pCi/L	0.0068 U			
	Technetium-99	pCi/L	22.8			18
	Uranium	µg/L	0.2208			
	Uranium-233/234	pCi/L	0.0824			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0.0365 U			
	Uranium-238	pCi/L	0.074			
X231B-03G	Americium-241	pCi/L	0 U			
	Neptunium-237	pCi/L	-0.008 U			
	Plutonium-238	pCi/L	0.03 U			
	Plutonium-239/240	pCi/L	0.0075 U			
	Technetium-99	pCi/L	11.3			13.2
	Uranium	µg/L	0.2233			
	Uranium-233/234	pCi/L	0.1981			
	Uranium-235	pCi/L	0.0102 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0741			
X231B-04G	Americium-241	pCi/L	0.0096 U			
	Neptunium-237	pCi/L	0.0082 U			
	Plutonium-238	pCi/L	0.0327 U			
	Plutonium-239/240	pCi/L	0.0082 U			
	Technetium-99	pCi/L	17.8			13.2
	Uranium	µg/L	2.013			
	Uranium-233/234	pCi/L	4.981			
	Uranium-235	pCi/L	0.1655			
	Uranium-236	pCi/L	0.0186 U			
	Uranium-238	pCi/L	0.6611			
X231B-06G	Americium-241	pCi/L	0.0168 U			
	Neptunium-237	pCi/L	9E-06 U			
	Plutonium-238	pCi/L	0 U			

**Table 4.4. Results for radionuclides at the Quadrant I Groundwater Investigative Area (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X231B-06G	Plutonium-239/240	pCi/L	0 U			
	Technetium-99	pCi/L	52.7		11.8	
	Uranium	µg/L	6.982			
	Uranium-233/234	pCi/L	12.08			
	Uranium-235	pCi/L	0.4636			
	Uranium-236	pCi/L	0.051 U			
X231B-07G	Uranium-238	pCi/L	2.304			
	Technetium-99	pCi/L			24.1	
X231B-08G	Americium-241	pCi/L	-0.01 U			
	Neptunium-237	pCi/L	8E-06 U			
	Plutonium-238	pCi/L	8E-06 U			
	Plutonium-239/240	pCi/L	0.0084 U			
	Technetium-99	pCi/L	2.17 U		0.3 U	
	Uranium	µg/L	0.2799			
	Uranium-233/234	pCi/L	0.2217			
	Uranium-235	pCi/L	0.0283 U			
	Uranium-236	pCi/L	-0.008 U			
X231B-11G	Uranium-238	pCi/L	0.0916			
	Technetium-99	pCi/L			-0.4 U	
X231B-12G	Americium-241	pCi/L	0.0131 U			
	Neptunium-237	pCi/L	0 U			
	Plutonium-238	pCi/L	0.0332 U			
	Plutonium-239/240	pCi/L	0 U			
	Technetium-99	pCi/L	-2.25 U		-0.06 U	
	Uranium	µg/L	0.1078 U			
	Uranium-233/234	pCi/L	0.1452			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0362 U			
X231B-14G	Americium-241	pCi/L	0.0105 U			
	Neptunium-237	pCi/L	9E-06 U			
	Plutonium-238	pCi/L	0.0089 U			
	Plutonium-239/240	pCi/L	0.0089 U			
	Technetium-99	pCi/L	-0.095 U		1.25 U	
	Uranium	µg/L	0.2759			
	Uranium-233/234	pCi/L	0.0585 U			
	Uranium-235	pCi/L	0.0103 U			
	Uranium-236	pCi/L	0.0093 U			

**Table 4.4. Results for radionuclides at the Quadrant I Groundwater Investigative Area (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X231B-14G	Uranium-238	pCi/L	0.0917			
X231B-15G	Americium-241	pCi/L	0.0293 U			
	Neptunium-237	pCi/L	2E-05 U			
	Plutonium-238	pCi/L	0 U			
	Plutonium-239/240	pCi/L	0.0085 U			
	Technetium-99	pCi/L	0.947 U		0.45 U	
	Uranium	µg/L	0.2022			
	Uranium-233/234	pCi/L	0.0936			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0679			
X231B-16G	Americium-241	pCi/L	-0.014 U			
	Neptunium-237	pCi/L	-0.009 U			
	Plutonium-238	pCi/L	0.0094 U			
	Plutonium-239/240	pCi/L	0 U			
	Technetium-99	pCi/L	-2.41 U		0.7 U	
	Uranium	µg/L	0.1659			
	Uranium-233/234	pCi/L	0.0823 U			
	Uranium-235	pCi/L	0.0113 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0547			
X231B-19G	Technetium-99	pCi/L			0.6 U	
X231B-20G	Americium-241	pCi/L	1E-05 U			
	Neptunium-237	pCi/L	9E-06 U			
	Plutonium-238	pCi/L	-0.009 U			
	Plutonium-239/240	pCi/L	9E-06 U			
	Technetium-99	pCi/L	0.0218 U		4.1	
	Uranium	µg/L	0.3037			
	Uranium-233/234	pCi/L	0.1494			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.102			
X231B-23G	Americium-241	pCi/L	0.0319 U			
	Neptunium-237	pCi/L	9E-06 U			
	Plutonium-238	pCi/L	0.0187 U			
	Plutonium-239/240	pCi/L	-0.009 U			
	Technetium-99	pCi/L	-0.539 U		-1 U	
	Uranium	µg/L	0.3455			

**Table 4.4. Results for radionuclides at the Quadrant I Groundwater Investigative Area (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X231B-23G	Uranium-233/234	pCi/L	0.0705 U			
	Uranium-235	pCi/L	0.0217 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.1141			
X231B-24B	Technetium-99	pCi/L			-0.47 U	
X231B-27G	Americium-241	pCi/L	0 U			
	Neptunium-237	pCi/L	-0.010 U			
	Plutonium-238	pCi/L	0.0302 U			
	Plutonium-239/240	pCi/L	0.0101 U			
	Technetium-99	pCi/L	-0.833 U		0.3 U	
	Uranium	µg/L	0.1222 U			
	Uranium-233/234	pCi/L	0.0659 U			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	-0.009 U			
	Uranium-238	pCi/L	0.0411 U			
X231B-28G	Americium-241	pCi/L	-0.011 U			
	Neptunium-237	pCi/L	0.0092 U			
	Plutonium-238	pCi/L	0.0274 U			
	Plutonium-239/240	pCi/L	9E-06 U			
	Technetium-99	pCi/L	3.19 U		0.2 U	
	Uranium	µg/L	0.0222			
	Uranium-233/234	pCi/L	0.0821			
	Uranium-235	pCi/L	0.0101 U			
	Uranium-236	pCi/L	-0.009 U			
	Uranium-238	pCi/L	0.0737			
X231B-29G	Technetium-99	pCi/L			3.7	
X231B-32B	Technetium-99	pCi/L			1 U	
X231B-33B	Technetium-99	pCi/L			-0.3 U	
X231B-34B	Technetium-99	pCi/L			0.3 U	
X231B-36G	Technetium-99	pCi/L			-0.28 U	
X231B-37G	Americium-241	pCi/L	0.0089 U			
	Neptunium-237	pCi/L	-0.017 U			
	Plutonium-238	pCi/L	0.0168 U			
	Plutonium-239/240	pCi/L	0 U			
	Technetium-99	pCi/L	-0.223 U		0.5 U	
	Uranium	µg/L	0.3556			
	Uranium-233/234	pCi/L	0.1882			
	Uranium-235	pCi/L	0 U			

**Table 4.4. Results for radionuclides at the Quadrant I Groundwater Investigative Area (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X231B-37G	Uranium-236	pCi/L	-0.009 U			
	Uranium-238	pCi/L	0.1195			
X231B-38G	Technetium-99	pCi/L			1.89 J	
X231B-39G	Technetium-99	pCi/L			1.1 U	
X326-09G	Americium-241	pCi/L	0.0101 U			
	Neptunium-237	pCi/L	0.0149 U			
	Plutonium-238	pCi/L	7E-06 U			
	Plutonium-239/240	pCi/L	0.0297 U			
	Technetium-99	pCi/L	0.0854 U			-0.4 U
	Uranium	µg/L	0.1028 U			
	Uranium-233/234	pCi/L	0.0864			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0.0096 U			
	Uranium-238	pCi/L	0.0345 U			
X326-10G	Americium-241	pCi/L	0.0106 U			
	Neptunium-237	pCi/L	-0.008 U			
	Plutonium-238	pCi/L	8E-06 U			
	Plutonium-239/240	pCi/L	0.0079 U			
	Technetium-99	pCi/L	5.61 U			1.88 J
	Uranium	µg/L	3.875			
	Uranium-233/234	pCi/L	1.455			
	Uranium-235	pCi/L	0.0399 U			
	Uranium-236	pCi/L	9E-06 U			
	Uranium-238	pCi/L	1.298			
X626-07G	Americium-241	pCi/L	0 U			
	Neptunium-237	pCi/L	7E-06 U			
	Plutonium-238	pCi/L	0.0149 U			
	Plutonium-239/240	pCi/L	7E-06 U			
	Technetium-99	pCi/L	3.89 U			1.2 U
	Uranium	µg/L	0.1305			
	Uranium-233/234	pCi/L	0.0505 U			
	Uranium-235	pCi/L	0.0208 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.042			
X710-01G	Technetium-99	pCi/L			0.4 U	
X749A-01G	Americium-241	pCi/L	0.00829 U			0 U
	Neptunium-237	pCi/L		0.0147 U		-0.02022 U
	Plutonium-238	pCi/L		-0.0073 U		0.006738 U

**Table 4.4. Results for radionuclides at the Quadrant I Groundwater Investigative Area (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749A-01G	Plutonium-239/240	pCi/L		-0.0146 U		0 U
	Technetium-99	pCi/L		-5.06 U		4.09 U
	Uranium	µg/L		0.4627		0.3369
	Uranium-233/234	pCi/L		0.1639		0.0836
	Uranium-235	pCi/L		0.01123 U		0 U
	Uranium-236	pCi/L		0 U		0 U
	Uranium-238	pCi/L		0.1545		0.1132
X749A-02G	Americium-241	pCi/L		0.00778 U		0.00737 U
	Neptunium-237	pCi/L		8.2E-06 U		2.12E-05 U
	Plutonium-238	pCi/L		0.02444 U		0.01409 U
	Plutonium-239/240	pCi/L		0.0163 U		0.007047 U
	Technetium-99	pCi/L		-0.636 U		7.22 U
	Uranium	µg/L		0.2657		0.1467
	Uranium-233/234	pCi/L		0.08052		0.1111
	Uranium-235	pCi/L		0.00993 U		0 U
	Uranium-236	pCi/L		0 U		0 U
	Uranium-238	pCi/L		0.08838		0.04927
X749A-03G	Americium-241	pCi/L		9.3E-06 U		0.01424 U
	Neptunium-237	pCi/L		0 U		0.03199 U
	Plutonium-238	pCi/L		-0.0157 U		0.00797 U
	Plutonium-239/240	pCi/L		0.00788 U		-0.00796 U
	Technetium-99	pCi/L		1.26 U		-0.233 U
	Uranium	µg/L		0.4188		0.2547
	Uranium-233/234	pCi/L		0.141		0.05511
	Uranium-235	pCi/L		0 U		0 U
	Uranium-236	pCi/L		0 U		0.006782 U
	Uranium-238	pCi/L		0.1407		0.08556
X749A-04G	Americium-241	pCi/L		0.00892 U		1.5E-05 U
	Neptunium-237	pCi/L		-0.0080 U		0.007166 U
	Plutonium-238	pCi/L		0.03204 U		0.02856 U
	Plutonium-239/240	pCi/L		0.00802 U		0 U
	Technetium-99	pCi/L		-0.881 U		-0.508 U
	Uranium	µg/L		-0.0001 U		0.08368 U
	Uranium-233/234	pCi/L		0.03068 U		0.007047 U
	Uranium-235	pCi/L		0 U		0 U
	Uranium-236	pCi/L		-0.0085 U		0.00779 U
	Uranium-238	pCi/L		0 U		0.02808 U
X749A-05G	Americium-241	pCi/L		0 U		0 U

**Table 4.4. Results for radionuclides at the Quadrant I Groundwater Investigative Area (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749A-05G	Neptunium-237	pCi/L		0.0078 U		-0.02789 U
	Plutonium-238	pCi/L		0.00778 U		-0.0278 U
	Plutonium-239/240	pCi/L		-0.0155 U		0 U
	Technetium-99	pCi/L		-1.41 U		-1.94 U
	Uranium	µg/L		0.116		0.07442 U
	Uranium-233/234	pCi/L		0.05466		0.03763
	Uranium-235	pCi/L		9.6E-06 U		0 U
	Uranium-236	pCi/L		0 U		-0.00694 U
	Uranium-238	pCi/L		0.03896		0.02504 U
	Americium-241	pCi/L		0.00827 U		0 U
X749A-07G	Neptunium-237	pCi/L		-0.0298 U		0.007261 U
	Plutonium-238	pCi/L		0.00745 U		0.0217 U
	Plutonium-239/240	pCi/L		0.00745 U		-0.01444 U
	Technetium-99	pCi/L		-4.28 U		2.94 U
	Uranium	µg/L		6.18		4.622
	Uranium-233/234	pCi/L		2.533		1.97
	Uranium-235	pCi/L		0.112		0.05401
	Uranium-236	pCi/L		0 U		0.006928 U
	Uranium-238	pCi/L		2.067		1.548
	Americium-241	pCi/L		-0.0178 U		0.006956 U
X749A-12G	Neptunium-237	pCi/L		2.5E-05 U		0.008127 U
	Plutonium-238	pCi/L		1.7E-05 U		0.01621 U
	Plutonium-239/240	pCi/L		-0.0084 U		0.008104 U
	Technetium-99	pCi/L		-1.5 U		0.0419 U
	Uranium	µg/L		0.1051 U		0.1521
	Uranium-233/234	pCi/L		0.01769 U		0.05043
	Uranium-235	pCi/L		0 U		0.007777 U
	Uranium-236	pCi/L		0 U		0.01397 U
	Uranium-238	pCi/L		0.03531 U		0.05033
	Americium-241	pCi/L		0.00820 U		0.00745 U
X749A-13GA	Neptunium-237	pCi/L		-0.0333 U		0.007417 U
	Plutonium-238	pCi/L		-0.0083 U		0.007367 U
	Plutonium-239/240	pCi/L		0 U		0.01473 U
	Technetium-99	pCi/L		-2.58 U		-1.59 U
	Uranium	µg/L		2.045		1.045
	Uranium-233/234	pCi/L		1.037		0.5356
	Uranium-235	pCi/L		0.03021 U		0.01632 U
	Uranium-236	pCi/L		0 U		0 U

**Table 4.4. Results for radionuclides at the Quadrant I Groundwater Investigative Area (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X749A-13GA	Uranium-238	pCi/L	0.6843			0.3497
X749A-14G	Americium-241	pCi/L	0.00929 U			1.52E-05 U
	Neptunium-237	pCi/L	-0.0345 U			0.007466 U
	Plutonium-238	pCi/L	0.01723 U			1.49E-05 U
	Plutonium-239/240	pCi/L	8.6E-06 U			-0.01486 U
	Technetium-99	pCi/L	0.0905 U			-0.88 U
	Uranium	µg/L	0.06998 U			0.05236 U
	Uranium-233/234	pCi/L	0.07039			0.03533 U
	Uranium-235	pCi/L	0 U			0 U
	Uranium-236	pCi/L	0.01732 U			-0.00652 U
	Uranium-238	pCi/L	0.02342 U			0.01763 U
X749A-16G	Americium-241	pCi/L	8.8E-06 U			0.007468 U
	Neptunium-237	pCi/L	-0.0576 U			0.007861 U
	Plutonium-238	pCi/L	0.00959 U			0.02349 U
	Plutonium-239/240	pCi/L	0.00959 U			7.82E-06 U
	Technetium-99	pCi/L	-3.17 U			5.31 U
	Uranium	µg/L	0.2303			0.1716
	Uranium-233/234	pCi/L	0.03446 U			0.05638 U
	Uranium-235	pCi/L	0 U			0.01545 U
	Uranium-236	pCi/L	0 U			0.006935 U
	Uranium-238	pCi/L	0.07739			0.05625
X760-02G	Technetium-99	pCi/L			0.7 U	
X760-03G	Technetium-99	pCi/L			7.3	
X760-07G	Technetium-99	pCi/L			2.01	
X770-MW17G	Americium-241	pCi/L	-0.019 U			
	Neptunium-237	pCi/L	-0.04 U			
	Plutonium-238	pCi/L	0 U			
	Plutonium-239/240	pCi/L	8E-06 U			
	Technetium-99	pCi/L	1.61 U			1.2 U
	Uranium	µg/L	0.6724			
	Uranium-233/234	pCi/L	0.1962			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.2259			

**Table 4.5. Volatile organic compounds detected at the Quadrant II Groundwater Investigative Area**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X700-02G	1,1,1-Trichloroethane	µg/L			17J	
	1,1-Dichloroethane	µg/L			16J	
	1,1-Dichloroethene	µg/L			140	
	1,2-Dichloroethane	µg/L			7.8J	
	cis-1,2-Dichloroethene	µg/L			83	
	Trichloroethene	µg/L		2900		
X701-26G	1,1-Dichloroethene	µg/L			9.6	
	Chloroform	µg/L			0.39J	
	cis-1,2-Dichloroethene	µg/L			0.18J	
	Tetrachloroethene	µg/L			14	
	Trichloroethene	µg/L			3.9	
	Trichlorofluoromethane	µg/L			1.9J	
X701-27G	1,1-Dichloroethane	µg/L			0.4J	
	1,1-Dichloroethene	µg/L			2.6	
	Acetone	µg/L			3.2BJ	
	Trichloroethene	µg/L			0.23J	
X701-28GA	cis-1,2-Dichloroethene	µg/L			0.71J	
	Trichloroethene	µg/L			0.27J	
X701-45G	1,1-Dichloroethane	µg/L			0.23J	
	1,1-Dichloroethene	µg/L			0.43J	
	Methylene chloride	µg/L			0.52J	
	Trichloroethene	µg/L			0.72J	
X701-46G	Methylene chloride	µg/L			0.54J	
X701-68G	1,1,1-Trichloroethane	µg/L			0.17J	
	1,1-Dichloroethane	µg/L			0.41J	
	1,1-Dichloroethene	µg/L			0.73J	
	Chloroform	µg/L			0.4J	
	cis-1,2-Dichloroethene	µg/L			1J	
	Trichloroethene	µg/L			64	
	cis-1,2-Dichloroethene	µg/L			300	
X701-69G	trans-1,2-Dichloroethene	µg/L			11	
	Trichloroethene	µg/L			1700	
	1,1,1-Trichloroethane	µg/L			0.69J	
X701-70G	1,1-Dichloroethene	µg/L			8.6	
	cis-1,2-Dichloroethene	µg/L			0.95J	
	Trichloroethene	µg/L			1100	
	1,1,1-Trichloroethane	µg/L			0.33J	
X701-117GA	1,1-Dichloroethane	µg/L			0.23J	

**Table 4.5. Volatile organic compounds detected at the Quadrant II Groundwater Investigative Area  
(continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X701-117GA	1,1-Dichloroethene	µg/L			0.77 J	
	Acetone	µg/L			2.6 J	
	Chloroform	µg/L			0.34 J	
	Methylene chloride	µg/L			0.56 BJ	
	Trichloroethene	µg/L			230	
X705-01GA	1,1-Dichloroethene	µg/L			0.87 J	
	Acetone	µg/L			4.1 BJ	
	Bromodichloromethane	µg/L			0.27 J	
	Carbon tetrachloride	µg/L			1 J	
	Chloroform	µg/L			18	
	cis-1,2-Dichloroethene	µg/L			0.37 J	
	Methylene chloride	µg/L			0.38 J	
	Tetrachloroethene	µg/L			0.47 J	
X705-02G	Trichloroethene	µg/L			130	
	1,1-Dichloroethene	µg/L			0.45 J	
	Acetone	µg/L			21	
	cis-1,2-Dichloroethene	µg/L			0.53 J	
	Trichloroethene	µg/L			28 B	
X705-03G	1,1-Dichloroethane	µg/L			1.3 J	
	1,1-Dichloroethene	µg/L			0.89 J	
	Chloromethane	µg/L			0.99 J	
	cis-1,2-Dichloroethene	µg/L			3.7	
	Methylene chloride	µg/L			0.63 J	
	Tetrachloroethene	µg/L			0.25 J	
	trans-1,2-Dichloroethene	µg/L			0.21 J	
	Trichloroethene	µg/L			29	
X705-04G	1,1-Dichloroethane	µg/L			0.18 J	
	1,1-Dichloroethene	µg/L			1.8 J	
	Bromodichloromethane	µg/L			1.5 J	
	Carbon tetrachloride	µg/L			15	
	Chloroform	µg/L			290	
	Dibromochloromethane	µg/L			0.21 J	
	Methylene chloride	µg/L			0.65 J	
	Tetrachloroethene	µg/L			1.2 J	
	Trichloroethene	µg/L			200	
	Acetone	µg/L			14 B	
X705-05B	1,1-Dichloroethane	µg/L			0.5 J	
	1,1-Dichloroethene	µg/L			0.59 J	

**Table 4.5. Volatile organic compounds detected at the Quadrant II Groundwater Investigative Area  
(continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X705-06G	Acetone	µg/L			5.4 BJ	
	Chloroform	µg/L			1.1 J	
	cis-1,2-Dichloroethene	µg/L			11	
	Tetrachloroethene	µg/L			2.3	
	Trichloroethene	µg/L			66	
X705-07G	Bromodichloromethane	µg/L			0.22 J	
	Chloroform	µg/L			0.95 J	
	cis-1,2-Dichloroethene	µg/L			0.77 J	
	Trichloroethene	µg/L			14	
X705-08G	1,1-Dichloroethene	µg/L			7.7	
	Acetone	µg/L			7.8 BJ	
	Trichlorofluoromethane	µg/L			8.4	
X720-01G	1,1,1-Trichloroethane	µg/L			1200	
	1,1-Dichloroethane	µg/L			73 J	
	1,1-Dichloroethene	µg/L			1400	
	1,2-Dichloroethane	µg/L			67 J	
	Acetone	µg/L			1400	
	Chloroform	µg/L			52 J	
	cis-1,2-Dichloroethene	µg/L			87 J	
	Tetrachloroethene	µg/L			39 J	
	Trichloroethene	µg/L			120000 B	
	Acetone	µg/L			36	
X720-07G	Trichloroethene	µg/L			0.42 BJ	
	1,1-Dichloroethene	µg/L			50	
	Chloroform	µg/L			2.8 J	
	cis-1,2-Dichloroethene	µg/L			2.1 J	
X720-08G	Trichloroethene	µg/L			3400 B	

**Table 4.6. Results for radionuclides at the Quadrant II Groundwater Investigative Area**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
PRCL-01G	Technetium-99	pCi/L			-1.2 U	
X700-02G	Technetium-99	pCi/L			72.9	
X701-26G	Technetium-99	pCi/L			35	
X701-27G	Technetium-99	pCi/L			3.2	
X701-28GA	Technetium-99	pCi/L			0.8 U	
X701-29G	Technetium-99	pCi/L			-1.2 U	
X701-45G	Technetium-99	pCi/L			1.9 U	
X701-46G	Technetium-99	pCi/L			-0.2 U	
X701-68G	Technetium-99	pCi/L			16.5	
X701-69G	Technetium-99	pCi/L			-0.6 U	
X701-70G	Technetium-99	pCi/L			41.1	
X701-117GA	Technetium-99	pCi/L			68.1	
X705-01GA	Technetium-99	pCi/L			1290	
X705-02G	Technetium-99	pCi/L			1 U	
X705-03G	Technetium-99	pCi/L			1.9 U	
X705-04G	Technetium-99	pCi/L			11.4	
X705-05B	Technetium-99	pCi/L			-1.6 U	
X705-06G	Technetium-99	pCi/L			30.9	
X705-07G	Technetium-99	pCi/L			299	
X705-08G	Technetium-99	pCi/L			0.7 U	
X705-09B	Technetium-99	pCi/L			-0.9 U	
X705-10B	Technetium-99	pCi/L			-1.7 U	
X720-01G	Technetium-99	pCi/L			6.5	
X720-07G	Technetium-99	pCi/L			0.2 U	
X720-08G	Technetium-99	pCi/L			245	

**Table 4.7. Volatile organic compounds detected at the X-701B Holding Pond**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
LBC-PZ03	1,1-Dichloroethene	µg/L	2 U		0.3 J	
	Benzene	µg/L	0.2 J		2 U	
	cis-1,2-Dichloroethene	µg/L	22		120	
	Toluene	µg/L	0.24 J		2 U	
	trans-1,2-Dichloroethene	µg/L	0.29 J		1.7	
	Trichloroethene	µg/L	34		150	
	Vinyl chloride	µg/L	1 U		0.54 J	
LBC-PZ06	Acetone	µg/L	10 U		4.4 J	
X230J7-01GA	cis-1,2-Dichloroethene	µg/L	0.76 J			
	Trichloroethene	µg/L	190			
X230J7-02GA	cis-1,2-Dichloroethene	µg/L	4 J			
	Trichloroethene	µg/L	1000			
X230J7-03GA	cis-1,2-Dichloroethene	µg/L	310			
	trans-1,2-Dichloroethene	µg/L	16 J			
	Trichloroethene	µg/L	2600			
X230J7-04GA	Chloromethane	µg/L			0.44 J	
X701-01G	cis-1,2-Dichloroethene	µg/L	1 J		1.1 J	
	Trichloroethene	µg/L	6.5		6.1	
X701-02G	cis-1,2-Dichloroethene	µg/L	7		2 U	
	Trichloroethene	µg/L	8.7		2 U	
X701-05G	1,1-Dichloroethene	µg/L	2 U		1.3 J	
	Carbon disulfide	µg/L	2 U		3.3	
	cis-1,2-Dichloroethene	µg/L	2 U		6.7	
	trans-1,2-Dichloroethene	µg/L	0.5 U		0.43 J	
	Trichloroethene	µg/L	2.7		58	
X701-06G	1,1-Dichloroethane	µg/L	8 U		0.24 J	
	1,1-Dichloroethene	µg/L	3.3 J		2.4	
	Chloroform	µg/L	8 U		0.18 J	
	cis-1,2-Dichloroethene	µg/L	15		14	
	trans-1,2-Dichloroethene	µg/L	2 U		0.8 J	
	Trichloroethene	µg/L	150		70	
X701-08G	Methylene chloride	µg/L			1500 BJ	
	Tetrachloroethene	µg/L			1200 J	
	Trichloroethene	µg/L			410000	
X701-09G	cis-1,2-Dichloroethene	µg/L	28000 J			
	Methylene chloride	µg/L	20000 BJ			
	Trichloroethene	µg/L	630000			
X701-10G	1,1-Dichloroethene	µg/L	200 U		1.1 J	

**Table 4.7. Volatile organic compounds detected at the X-701B Holding Pond (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X701-10G	cis-1,2-Dichloroethene	µg/L	120 J		57	
	Methylene chloride	µg/L	200 U		5.4 BJ	
	Tetrachloroethene	µg/L	200 U		1.4 J	
	Trichloroethene	µg/L	2800		1900	
	Vinyl chloride	µg/L	100 U		4.9 J	
X701-12G	1,2-Dichlorobenzene	µg/L	0.67 J		0.83 J	
	Chlorobenzene	µg/L	0.28 J		0.26 J	
	cis-1,2-Dichloroethene	µg/L	35		28	
	Tetrachloroethene	µg/L	0.31 J		0.21 J	
	Trichloroethene	µg/L	27		21	
X701-13G	Vinyl chloride	µg/L	1.9		1.1	
	1,1-Dichloroethane	µg/L	53 U		0.47 J	
	1,1-Dichloroethene	µg/L	53 U		0.78 J	
	cis-1,2-Dichloroethene	µg/L	130			
	Methylene chloride	µg/L	14 BJ		1.2 J	
X701-14G	Tetrachloroethene	µg/L	53 U		1.6 J	
	Trichloroethene	µg/L	1100		760	
	Vinyl chloride	µg/L	8.6 J		9	
	1,1,1-Trichloroethane	µg/L	10000 U		220	
	1,1-Dichloroethene	µg/L	10000 U		59 J	
X701-15G	cis-1,2-Dichloroethene	µg/L	7500 J			
	Methylene chloride	µg/L	2400 BJ		130 J	
	Tetrachloroethene	µg/L	10000 U		130 J	
	Trichloroethene	µg/L	180000		93000	
	Vinyl chloride	µg/L	5000 U		200	
X701-16G	cis-1,2-Dichloroethene	µg/L	3.6		15	
	Methylene chloride	µg/L	2 U		0.33 BJ	
	Toluene	µg/L	0.19 J		2 U	
	trans-1,2-Dichloroethene	µg/L	0.19 J		0.59 J	
	Trichloroethene	µg/L	1.5 J		5.4	
X701-18G	Toluene	µg/L	0.18 J		2 U	
	Trichloroethene	µg/L	0.19 J		0.36 J	
X701-19G	Methylene chloride	µg/L			0.52 BJ	
X701-20G	Acetone	µg/L	10 U		8.2 J	
	Methylene chloride	µg/L	2 U		0.51 BJ	
X701-21G	Methylene chloride	µg/L	5600 BJ			
	Trichloroethene	µg/L	170000			
X701-21G	1,2-Dichlorobenzene	µg/L	0.28 J		0.25 J	

**Table 4.7. Volatile organic compounds detected at the X-701B Holding Pond (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X701-21G	Chloroform	µg/L	0.2 J		0.26 J	
	cis-1,2-Dichloroethene	µg/L	0.58 J		0.69 J	
	Trichloroethene	µg/L	33		70	
X701-23G	Trichloroethene	µg/L			1.1 J	
X701-24G	Acetone	µg/L	15000		400 U	
	cis-1,2-Dichloroethene	µg/L	620		800	
	Methylene chloride	µg/L	400 U		20 BJ	
	trans-1,2-Dichloroethene	µg/L	100 U		6.6 J	
	Trichloroethene	µg/L	4500		14000	
	Vinyl chloride	µg/L	200 U		31 J	
X701-25G	Methylene chloride	µg/L	2 U		0.53 BJ	
X701-30G	cis-1,2-Dichloroethene	µg/L	0.43 J		0.29 J	
	Methylene chloride	µg/L	2 U		0.52 BJ	
	Trichloroethene	µg/L	8.7		6.6	
	Trichlorofluoromethane	µg/L	1.1 J		0.48 J	
X701-31G	Carbon tetrachloride	µg/L	0.2 J			
	Trichloroethene	µg/L	0.25 J			
X701-38G	1,2-Dichlorobenzene	µg/L			0.38 J	
	Chloroform	µg/L			1.9 J	
X701-50B	Methylene chloride	µg/L			0.57 BJ	
X701-58B	Benzene	µg/L			0.59 J	
X701-61B	1,2-Dimethylbenzene	µg/L			0.43 J	
	cis-1,2-Dichloroethene	µg/L			0.24 J	
	Ethylbenzene	µg/L			0.16 J	
	M + P Xylene	µg/L			3.2	
	Trichloroethene	µg/L			0.18 J	
	cis-1,2-Dichloroethene	µg/L	450 J		450 J	
X701-127G	Trichloroethene	µg/L	85000		63000	
	cis-1,2-Dichloroethene	µg/L	1300 U		28 J	
	Trichloroethene	µg/L	16000		13000	
X701-BW1G	Methylene chloride	µg/L			0.65 BJ	
X701-BW2G	1,1-Dichloroethene	µg/L	5.6 J			
	cis-1,2-Dichloroethene	µg/L	110			
	Methylene chloride	µg/L	11 BJ			
	trans-1,2-Dichloroethene	µg/L	4.1 J			
	Trichloroethene	µg/L	670			
X701-BW4G	cis-1,2-Dichloroethene	µg/L	0.59 J		0.86 J	
	Methylene chloride	µg/L	2 U		0.51 BJ	

**Table 4.7. Volatile organic compounds detected at the X-701B Holding Pond (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X701-BW4G	Trichloroethene	µg/L	1.2 J		1.3 J	
X744G-02G	cis-1,2-Dichloroethene	µg/L	0.92 J		0.96 J	
	Trichloroethene	µg/L	13		16	
	Trichlorofluoromethane	µg/L	1.1 J		1.3 J	
X744G-03G	Bromodichloromethane	µg/L	2 U		2	
	Bromoform	µg/L	2 U		1.2 J	
	Chloroform	µg/L	2 U		2.1	
	Dibromochloromethane	µg/L	2 U		2.7	
	Trichloroethene	µg/L	0.26 J		2 U	

**Table 4.8. Results for radionuclides at the X-701B Holding Pond**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
LBC-PZ03	Americium-241	pCi/L	0.0338 U			
	Neptunium-237	pCi/L	0 U			
	Plutonium-238	pCi/L	0.0257 U			
	Plutonium-239/240	pCi/L	0.0086 U			
	Technetium-99	pCi/L	-11.1 U		0.2 U	
	Uranium	$\mu\text{g}/\text{L}$	0.231 U			
	Uranium-233/234	pCi/L	0.0680 U			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0.0108 U			
	Uranium-238	pCi/L	0.0776 U			
LBC-PZ06	Americium-241	pCi/L	-0.012 U			
	Neptunium-237	pCi/L	-0.008 U			
	Plutonium-238	pCi/L	0.0083 U			
	Plutonium-239/240	pCi/L	0.0166 U			
	Technetium-99	pCi/L	-4.42 U		2.8	
	Uranium	$\mu\text{g}/\text{L}$	0.2787			
	Uranium-233/234	pCi/L	0.169			
	Uranium-235	pCi/L	0.0104 U			
	Uranium-236	pCi/L	-0.009 U			
	Uranium-238	pCi/L	0.0928			
X230J7-01GA	Americium-241	pCi/L	0.0183 U			
	Neptunium-237	pCi/L	0 U			
	Plutonium-238	pCi/L	0.0292 U			
	Plutonium-239/240	pCi/L	0.0146 U			
	Technetium-99	pCi/L	-1.73 U			
	Uranium	$\mu\text{g}/\text{L}$	0.1618 U			
	Uranium-233/234	pCi/L	0.087			
	Uranium-235	pCi/L	-0.01 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0552 U			
X230J7-02GA	Americium-241	pCi/L	-0.02 U			
	Neptunium-237	pCi/L	-0.007 U			
	Plutonium-238	pCi/L	0.0215 U			
	Plutonium-239/240	pCi/L	0.0072 U			
	Technetium-99	pCi/L	28.4			
	Uranium	$\mu\text{g}/\text{L}$	0.1947			
	Uranium-233/234	pCi/L	0.0410 U			
	Uranium-235	pCi/L	0 U			

**Table 4.8. Results for radionuclides at the X-701B Holding Pond (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X230J7-02GA	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0654			
X230J7-03GA	Americium-241	pCi/L	0 U			
	Neptunium-237	pCi/L	0.0081 U			
	Plutonium-238	pCi/L	0.0241 U			
	Plutonium-239/240	pCi/L	2E-05 U			
	Technetium-99	pCi/L	31.4			
	Uranium	µg/L	0.2266			
	Uranium-233/234	pCi/L	0.1102			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0761			
X230J7-04GA	Technetium-99	pCi/L			-0.333 U	
X700-03G	Americium-241	pCi/L	0.0215 U			
	Neptunium-237	pCi/L	2E-05 U			
	Plutonium-238	pCi/L	0.0497 U			
	Plutonium-239/240	pCi/L	-0.033 U			
	Technetium-99	pCi/L	0.804 U			
	Uranium	µg/L	0.0253 U			
	Uranium-233/234	pCi/L	0.0340 U			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	9E-06 U			
	Uranium-238	pCi/L	0.0085 U			
X701-01G	Americium-241	pCi/L	0.0164 U			
	Neptunium-237	pCi/L	-0.012 U			
	Plutonium-238	pCi/L	0.0245 U			
	Plutonium-239/240	pCi/L	-0.012 U			
	Technetium-99	pCi/L	-2.42 U			
	Uranium	µg/L	0.5921			
	Uranium-233/234	pCi/L	0.3435			
	Uranium-235	pCi/L	-0.012 U			
	Uranium-236	pCi/L	0.0106 U			
	Uranium-238	pCi/L	0.2			
X701-02G	Americium-241	pCi/L	0.009 U			
	Neptunium-237	pCi/L	0 U			
	Plutonium-238	pCi/L	0.0085 U			
	Plutonium-239/240	pCi/L	-0.017 U			
	Technetium-99	pCi/L	1.09 U		0.5 U	

**Table 4.8. Results for radionuclides at the X-701B Holding Pond (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X701-02G	Uranium	µg/L	1.043			
	Uranium-233/234	pCi/L	0.7017			
	Uranium-235	pCi/L	0.0521			
	Uranium-236	pCi/L	0.0094 U			
	Uranium-238	pCi/L	0.3459			
X701-05G	Americium-241	pCi/L	0.0089 U			
	Neptunium-237	pCi/L	0.0257 U			
	Plutonium-238	pCi/L	0.0086 U			
	Plutonium-239/240	pCi/L	0 U			
	Technetium-99	pCi/L	291		40.6	
	Uranium	µg/L	82.35			
	Uranium-233/234	pCi/L	156.9			
X701-06G	Uranium-235	pCi/L	7.044			
	Uranium-236	pCi/L	1.131			
	Uranium-238	pCi/L	27.03			
	Americium-241	pCi/L	0.0172 U			
	Neptunium-237	pCi/L	0.045			
	Plutonium-238	pCi/L	0.0224 U			
	Plutonium-239/240	pCi/L	0.0075 U			
X701-08G	Technetium-99	pCi/L	6.59 U		4.3	
	Uranium	µg/L	0.3748			
	Uranium-233/234	pCi/L	0.1685			
	Uranium-235	pCi/L	0.0219 U			
	Uranium-236	pCi/L	0.0098 U			
	Uranium-238	pCi/L	0.1239			
	Technetium-99	pCi/L			297	
X701-09G	Americium-241	pCi/L	0 U			
	Neptunium-237	pCi/L	9E-06 U			
	Plutonium-238	pCi/L	0.009 U			
	Plutonium-239/240	pCi/L	0.009 U			
	Technetium-99	pCi/L	96.3			
	Uranium	µg/L	0.2056 U			
	Uranium-233/234	pCi/L	0.0703 U			
X701-10G	Uranium-235	pCi/L	-0.011 U			
	Uranium-236	pCi/L	-0.019 U			
	Uranium-238	pCi/L	0.0702 U			
	Americium-241	pCi/L	0.0095 U			
	Neptunium-237	pCi/L	4E-05 U			

**Table 4.8. Results for radionuclides at the X-701B Holding Pond (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X701-10G	Plutonium-238	pCi/L	0 U			
	Plutonium-239/240	pCi/L	-0.010 U			
	Technetium-99	pCi/L	4.19 U		6.6	
	Uranium	$\mu\text{g}/\text{L}$	0.0628 U			
	Uranium-233/234	pCi/L	0.0528 U			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0.0117 U			
	Uranium-238	pCi/L	0.0211 U			
X701-12G	Americium-241	pCi/L	0.0293 U			
	Neptunium-237	pCi/L	0.0001 U			
	Plutonium-238	pCi/L	2E-05 U			
	Plutonium-239/240	pCi/L	0.0255 U			
	Technetium-99	pCi/L	758		309	
	Uranium	$\mu\text{g}/\text{L}$	0.0836 U			
	Uranium-233/234	pCi/L	0.0470 U			
	Uranium-235	pCi/L	0 U			
X701-13G	Uranium-236	pCi/L	-0.010 U			
	Uranium-238	pCi/L	0.0282 U			
	Americium-241	pCi/L	0 U			
	Neptunium-237	pCi/L	0 U			
	Plutonium-238	pCi/L	0.047 U			
	Plutonium-239/240	pCi/L	0.0376 U			
	Technetium-99	pCi/L	475		491	
	Uranium	$\mu\text{g}/\text{L}$	0.16			
X701-14G	Uranium-233/234	pCi/L	0.0847			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0538			
	Americium-241	pCi/L	-0.011 U			
	Neptunium-237	pCi/L	-0.008 U			
	Plutonium-238	pCi/L	0.0150 U			
	Plutonium-239/240	pCi/L	0.0226 U			
	Technetium-99	pCi/L	84.4		81.5	
	Uranium	$\mu\text{g}/\text{L}$	0.1989			
	Uranium-233/234	pCi/L	0.0586 U			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	9E-06 U			
	Uranium-238	pCi/L	0.0669			

**Table 4.8. Results for radionuclides at the X-701B Holding Pond (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X701-15G	Americium-241	pCi/L	-0.022 U			
	Neptunium-237	pCi/L	-0.005 U			
	Plutonium-238	pCi/L	0.0051 U			
	Plutonium-239/240	pCi/L	-0.010 U			
	Technetium-99	pCi/L	-5.12 U		0.44 U	
	Uranium	µg/L	0.1627			
	Uranium-233/234	pCi/L	0.0628 U			
	Uranium-235	pCi/L	0.0111 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0537			
X701-16G	Americium-241	pCi/L	0.0107 U			
	Neptunium-237	pCi/L	-0.044 U			
	Plutonium-238	pCi/L	0.0177 U			
	Plutonium-239/240	pCi/L	0.0177 U			
	Technetium-99	pCi/L	-3.21 U		1.5 U	
	Uranium	µg/L	0.2686 U			
	Uranium-233/234	pCi/L	0.0804 U			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	1E-05 U			
	Uranium-238	pCi/L	0.0903 U			
X701-18G	Technetium-99	pCi/L			-0.4 U	
X701-19G	Americium-241	pCi/L	-0.009 U			
	Neptunium-237	pCi/L	9E-06 U			
	Plutonium-238	pCi/L	0.0181 U			
	Plutonium-239/240	pCi/L	9E-06 U			
	Technetium-99	pCi/L	0.449 U		1.3 U	
	Uranium	µg/L	0.0838 U			
	Uranium-233/234	pCi/L	-0.019 U			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0281 U			
X701-20G	Americium-241	pCi/L	1E-05 U			
	Neptunium-237	pCi/L	0.0329 U			
	Plutonium-238	pCi/L	0.0164 U			
	Plutonium-239/240	pCi/L	-0.016 U			
	Technetium-99	pCi/L	101			
	Uranium	µg/L	0.0286 U			
	Uranium-233/234	pCi/L	0.0607			

**Table 4.8. Results for radionuclides at the X-701B Holding Pond (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X701-20G	Uranium-235	pCi/L	0.0107 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0087 U			
X701-21G	Americium-241	pCi/L	0.009 U			
	Neptunium-237	pCi/L	0.0080 U			
	Plutonium-238	pCi/L	0.0160 U			
	Plutonium-239/240	pCi/L	-0.008 U			
	Technetium-99	pCi/L	145		141	
	Uranium	$\mu\text{g}/\text{L}$	0.1951 U			
	Uranium-233/234	pCi/L	0.0554			
	Uranium-235	pCi/L	0.0114 U			
	Uranium-236	pCi/L	0 U			
X701-23G	Uranium-238	pCi/L	0.0646 U			
	Technetium-99	pCi/L			-0.148 U	
X701-24G	Americium-241	pCi/L	0.0104 U			
	Neptunium-237	pCi/L	0.0085 U			
	Plutonium-238	pCi/L	0.0169 U			
	Plutonium-239/240	pCi/L	-0.017 U			
	Technetium-99	pCi/L	-0.845 U		7	
	Uranium	$\mu\text{g}/\text{L}$	0.3806			
	Uranium-233/234	pCi/L	0.1076 U			
	Uranium-235	pCi/L	0.0121 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.1268			
X701-25G	Americium-241	pCi/L	0.0350 U			
	Neptunium-237	pCi/L	9E-06 U			
	Plutonium-238	pCi/L	8E-06 U			
	Plutonium-239/240	pCi/L	0.0085 U			
	Technetium-99	pCi/L	-2 U		-0.4 U	
	Uranium	$\mu\text{g}/\text{L}$	0.0532 U			
	Uranium-233/234	pCi/L	0.1253			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0179 U			
X701-30G	Americium-241	pCi/L	-0.010 U			
	Neptunium-237	pCi/L	-0.071 U			
	Plutonium-238	pCi/L	0.0532 U			
	Plutonium-239/240	pCi/L	0.0089 U			

**Table 4.8. Results for radionuclides at the X-701B Holding Pond (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X701-30G	Technetium-99	pCi/L	4.64 U			
	Uranium	$\mu\text{g}/\text{L}$	0.0643 U			
	Uranium-233/234	pCi/L	0.1298			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0216 U			
X701-31G	Americium-241	pCi/L	-0.009 U			
	Neptunium-237	pCi/L	-0.017 U			
	Plutonium-238	pCi/L	0.0165 U			
	Plutonium-239/240	pCi/L	0.0083 U			
	Technetium-99	pCi/L	-1.71 U			
	Uranium	$\mu\text{g}/\text{L}$	0.0833 U			
	Uranium-233/234	pCi/L	4E-05 U			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.028 U			
X701-38G	Technetium-99	pCi/L			0.03 U	
X701-48G	Technetium-99	pCi/L			-0.09 U	
X701-50B	Technetium-99	pCi/L			-0.5 U	
X701-58B	Technetium-99	pCi/L			1.64 U	
X701-61B	Technetium-99	pCi/L			1.6 U	
X701-127G	Americium-241	pCi/L	-0.020 U			
	Neptunium-237	pCi/L	-0.017 U			
	Plutonium-238	pCi/L	0.0334 U			
	Plutonium-239/240	pCi/L	0.0084 U			
	Technetium-99	pCi/L	4.7 U			10.1
	Uranium	$\mu\text{g}/\text{L}$	0.2568			
	Uranium-233/234	pCi/L	0.0385 U			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	-0.011 U			
	Uranium-238	pCi/L	0.0864			
X701-128G	Americium-241	pCi/L	0.0193 U			
	Neptunium-237	pCi/L	-0.007 U			
	Plutonium-238	pCi/L	7E-06 U			
	Plutonium-239/240	pCi/L	0.0296 U			
	Technetium-99	pCi/L	2.63 U			4
	Uranium	$\mu\text{g}/\text{L}$	2.068			
	Uranium-233/234	pCi/L	0.7355			

**Table 4.8. Results for radionuclides at the X-701B Holding Pond (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X701-128G	Uranium-235	pCi/L	0.0309 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.6923			
X701-BW1G	Technetium-99	pCi/L			1.9 U	
X701-BW2G	Americium-241	pCi/L	0 U			
	Neptunium-237	pCi/L	0 U			
	Plutonium-238	pCi/L	0.0171 U			
	Plutonium-239/240	pCi/L	-0.009 U			
	Technetium-99	pCi/L	729			
	Uranium	µg/L	0.1071			
	Uranium-233/234	pCi/L	-0.009 U			
	Uranium-235	pCi/L	0.0108 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0350 U			
X701-BW4G	Americium-241	pCi/L	-0.020 U			
	Neptunium-237	pCi/L	8E-06 U			
	Plutonium-238	pCi/L	0.0158 U			
	Plutonium-239/240	pCi/L	0.0079 U			
	Technetium-99	pCi/L	217		267	
	Uranium	µg/L	0.2215			
	Uranium-233/234	pCi/L	0.1996			
	Uranium-235	pCi/L	0.0224 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.0724			

**Table 4.9. Results for chromium at the X-633 Pumphouse/Cooling Towers Area**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X633-07G	Chromium	µg/L		79		270
X633-PZ04G	Chromium	µg/L		8.8B		18

**Table 4.10. Volatile organic compounds detected at the X-616 Chromium Sludge Surface Impoundments**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X616-09G	1,1,1-Trichloroethane	µg/L	4.3			
	1,1-Dichloroethane	µg/L	1.4 J			
	1,1-Dichloroethene	µg/L	16			
	cis-1,2-Dichloroethene	µg/L	1.2 J			
	Trichloroethene	µg/L	10			
X616-13G	1,1,1-Trichloroethane	µg/L	1.5 J			
	1,1-Dichloroethane	µg/L	0.25 J			
	1,1-Dichloroethene	µg/L	4.2			
	Trichloroethene	µg/L	1.1 J			
X616-14G	1,1,1-Trichloroethane	µg/L	0.3 J			
	1,1-Dichloroethene	µg/L	0.71 J			
	Trichlorofluoromethane	µg/L	0.84 J			
X616-16G	cis-1,2-Dichloroethene	µg/L	2.4			
	Trichloroethene	µg/L	2.6			
X616-19B	Acetone	µg/L	5.4 J			
X616-20B	1,1-Dichloroethane	µg/L	0.58 J			
	Acetone	µg/L	5.1 J			
	cis-1,2-Dichloroethene	µg/L	0.43 J			
	Trichloroethene	µg/L	12			
X616-25G	cis-1,2-Dichloroethene	µg/L	0.4 J			
	Trichloroethene	µg/L	0.83 J			
X616-28B	1,1,1-Trichloroethane	µg/L	1.5 J			
	1,1-Dichloroethene	µg/L	0.93 J			
	2-Butanone	µg/L	4.4 J			
	Acetone	µg/L	5.2 J			
	Trichloroethene	µg/L	0.43 J			

**Table 4.11. Results for chromium at the X-616 Chromium Sludge Surface Impoundments**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X616-02G	Chromium	µg/L	0.88B			
X616-05G	Chromium	µg/L	380			
X616-09G	Chromium	µg/L	1.4B			
X616-10G	Chromium	µg/L	1B			
X616-13G	Chromium	µg/L	1.4B			
X616-14G	Chromium	µg/L	3.3			
X616-16G	Chromium	µg/L	1.1B			
X616-17G	Chromium	µg/L	8			
X616-19B	Chromium	µg/L	13			
X616-20B	Chromium	µg/L	2.7			
X616-21G	Chromium	µg/L	2.7			
X616-22G	Chromium	µg/L	0.66B			
X616-24B	Chromium	µg/L	4			
X616-25G	Chromium	µg/L	3.8			
X616-26G	Chromium	µg/L	2			
X616-28B	Chromium	µg/L	0.76B			

**Table 4.12. Results for radionuclides at the X-616 Chromium Sludge Surface Impoundments**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X616-02G	Americium-241	pCi/L	9E-06 U			
	Neptunium-237	pCi/L	0 U			
	Plutonium-238	pCi/L	0.0283 U			
	Plutonium-239/240	pCi/L	0.0189 U			
	Technetium-99	pCi/L	-7.08 U			
	Uranium	µg/L	2.904			
	Uranium-233/234	pCi/L	1.335			
	Uranium-235	pCi/L	0.0405 U			
	Uranium-236	pCi/L	0.0243 U			
	Uranium-238	pCi/L	0.9722			
X616-05G	Americium-241	pCi/L	0.0109 U			
	Neptunium-237	pCi/L	-0.030 U			
	Plutonium-238	pCi/L	0.0405 U			
	Plutonium-239/240	pCi/L	-0.020 U			
	Technetium-99	pCi/L	-8.19 U			
	Uranium	µg/L	0.3246			
	Uranium-233/234	pCi/L	0.3664			
	Uranium-235	pCi/L	0.0221 U			
	Uranium-236	pCi/L	0.0099 U			
	Uranium-238	pCi/L	0.107			
X616-09G	Americium-241	pCi/L	0 U			
	Neptunium-237	pCi/L	0.0147 U			
	Plutonium-238	pCi/L	-0.007 U			
	Plutonium-239/240	pCi/L	0 U			
	Technetium-99	pCi/L	1.03 U			
	Uranium	µg/L	1.492			
	Uranium-233/234	pCi/L	0.5923			
	Uranium-235	pCi/L	0.0385 U			
	Uranium-236	pCi/L	0.0230 U			
	Uranium-238	pCi/L	0.4978			
X616-10G	Americium-241	pCi/L	1E-05 U			
	Neptunium-237	pCi/L	7E-06 U			
	Plutonium-238	pCi/L	0.015 U			
	Plutonium-239/240	pCi/L	-0.007 U			
	Technetium-99	pCi/L	1.35 U			
	Uranium	µg/L	1.392			
	Uranium-233/234	pCi/L	0.4008			
	Uranium-235	pCi/L	0.0118 U			

**Table 4.12. Results for radionuclides at the X-616 Chromium Sludge Surface Impoundments (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X616-10G	Uranium-236	pCi/L	-0.011 U			
	Uranium-238	pCi/L	0.4667			
X616-13G	Americium-241	pCi/L	0.0136 U			
	Neptunium-237	pCi/L	0 U			
X616-13G	Plutonium-238	pCi/L	0.0294 U			
	Plutonium-239/240	pCi/L	0.0098 U			
X616-14G	Technetium-99	pCi/L	0.782 U			
	Uranium	µg/L	1.329			
X616-14G	Uranium-233/234	pCi/L	0.372			
	Uranium-235	pCi/L	0.0131 U			
X616-14G	Uranium-236	pCi/L	-0.024 U			
	Uranium-238	pCi/L	0.4455			
X616-14G	Americium-241	pCi/L	-0.014 U			
	Neptunium-237	pCi/L	-0.011 U			
X616-14G	Plutonium-238	pCi/L	-0.011 U			
	Plutonium-239/240	pCi/L	0 U			
X616-14G	Technetium-99	pCi/L	0.543 U			
	Uranium	µg/L	2.036			
X616-14G	Uranium-233/234	pCi/L	0.6979			
	Uranium-235	pCi/L	0.0172 U			
X616-14G	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.6826			
X616-16G	Americium-241	pCi/L	0.0097 U			
	Neptunium-237	pCi/L	0.0275 U			
X616-16G	Plutonium-238	pCi/L	0 U			
	Plutonium-239/240	pCi/L	-0.009 U			
X616-16G	Technetium-99	pCi/L	-2.86 U			
	Uranium	µg/L	0.4259			
X616-16G	Uranium-233/234	pCi/L	0.1237			
	Uranium-235	pCi/L	0.0218 U			
X616-16G	Uranium-236	pCi/L	0.0098 U			
	Uranium-238	pCi/L	0.1411			
X616-17G	Americium-241	pCi/L	2E-05 U			
	Neptunium-237	pCi/L	0.009 U			
X616-17G	Plutonium-238	pCi/L	2E-05 U			
	Plutonium-239/240	pCi/L	2E-05 U			
X616-17G	Technetium-99	pCi/L	-6.89 U			
	Uranium	µg/L	0.5182			

**Table 4.12. Results for radionuclides at the X-616 Chromium Sludge Surface Impoundments (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X616-17G	Uranium-233/234	pCi/L	0.2032			
	Uranium-235	pCi/L	-0.011 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.1751			
X616-19B	Americium-241	pCi/L	0.0090 U			
	Neptunium-237	pCi/L	0.0088 U			
	Plutonium-238	pCi/L	0.0351 U			
	Plutonium-239/240	pCi/L	0 U			
	Technetium-99	pCi/L	-3.5 U			
	Uranium	µg/L	0.6238			
	Uranium-233/234	pCi/L	0.4655			
	Uranium-235	pCi/L	0.0117 U			
	Uranium-236	pCi/L	0 U			
X616-20B	Uranium-238	pCi/L	0.2086			
	Americium-241	pCi/L	-0.010 U			
	Neptunium-237	pCi/L	-0.019 U			
	Plutonium-238	pCi/L	0.0382 U			
	Plutonium-239/240	pCi/L	-0.01 U			
	Technetium-99	pCi/L	-11.6 U			
	Uranium	µg/L	0.6557			
	Uranium-233/234	pCi/L	0.2455			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	-0.027 U			
X616-21G	Uranium-238	pCi/L	0.2205			
	Americium-241	pCi/L	0.0112 U			
	Neptunium-237	pCi/L	1E-05 U			
	Plutonium-238	pCi/L	0.0097 U			
	Plutonium-239/240	pCi/L	0 U			
	Technetium-99	pCi/L	-4.86 U			
	Uranium	µg/L	0.7776			
	Uranium-233/234	pCi/L	0.3959			
	Uranium-235	pCi/L	0.0119 U			
	Uranium-236	pCi/L	0 U			
X616-22G	Uranium-238	pCi/L	0.2602			
	Americium-241	pCi/L	0.0205 U			
	Neptunium-237	pCi/L	0.0095 U			
	Plutonium-238	pCi/L	0.0095 U			
	Plutonium-239/240	pCi/L	-0.009 U			

**Table 4.12. Results for radionuclides at the X-616 Chromium Sludge Surface Impoundments (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X616-22G	Technetium-99	pCi/L	1.31 U			
	Uranium	µg/L	0.9646			
	Uranium-233/234	pCi/L	0.3528			
	Uranium-235	pCi/L	0.0249 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.3219			
X616-24B	Americium-241	pCi/L	0.0096 U			
	Neptunium-237	pCi/L	9E-06 U			
	Plutonium-238	pCi/L	0.0268 U			
	Plutonium-239/240	pCi/L	0.0178 U			
	Technetium-99	pCi/L	4.32 U			
	Uranium	µg/L	0.6023			
	Uranium-233/234	pCi/L	0.6603			
	Uranium-235	pCi/L	0.0113 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.2013			
X616-25G	Americium-241	pCi/L	0 U			
	Neptunium-237	pCi/L	-0.008 U			
	Plutonium-238	pCi/L	0 U			
	Plutonium-239/240	pCi/L	0.0077 U			
	Technetium-99	pCi/L	3.5 U			
	Uranium	µg/L	1.057			
	Uranium-233/234	pCi/L	0.3362			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	1E-05 U			
	Uranium-238	pCi/L	0.3552			
X616-26G	Americium-241	pCi/L	3E-05 U			
	Neptunium-237	pCi/L	1E-05 U			
	Plutonium-238	pCi/L	0.0137 U			
	Plutonium-239/240	pCi/L	-0.014 U			
	Technetium-99	pCi/L	1.43 U			
	Uranium	µg/L	2.255			
	Uranium-233/234	pCi/L	1.044			
	Uranium-235	pCi/L	0.1215			
	Uranium-236	pCi/L	-0.011 U			
	Uranium-238	pCi/L	0.7468			
X616-28B	Americium-241	pCi/L	0.0186 U			
	Neptunium-237	pCi/L	0 U			

**Table 4.12. Results for radionuclides at the X-616 Chromium Sludge Surface Impoundments (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X616-28B	Plutonium-238	pCi/L	0.042 U			
	Plutonium-239/240	pCi/L	0.014 U			
	Technetium-99	pCi/L	-1.01 U			
	Uranium	$\mu\text{g}/\text{L}$	1.178			
	Uranium-233/234	pCi/L	0.942			
	Uranium-235	pCi/L	0.0270 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.3935			

**Table 4.13. Volatile organic compounds detected at the X-740 Waste Oil Handling Facility**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X740-02G	1,1,1-Trichloroethane	µg/L		6.9		
	1,1-Dichloroethane	µg/L		3.5		
	1,1-Dichloroethene	µg/L		4.7		
	Trichloroethene	µg/L		4.8		
X740-03G	1,1,1-Trichloroethane	µg/L		90 J		150
	1,1-Dichloroethane	µg/L		29 J		42
	1,1-Dichloroethene	µg/L		510		930
	1,2-Dichloroethane	µg/L		89 J		160
	Chloroform	µg/L		100 U		14 J
	cis-1,2-Dichloroethene	µg/L				15 J
	Tetrachloroethene	µg/L		95 J		170
	Trichloroethene	µg/L		3500		5500
X740-04G	1,1,1-Trichloroethane	µg/L		0.72 J		
	1,1-Dichloroethane	µg/L		0.25 J		
	1,1-Dichloroethene	µg/L		1.2 J		
	1,2-Dichloroethane	µg/L		0.41 J		
	Trichloroethene	µg/L		6.2		
X740-08G	1,1,1-Trichloroethane	µg/L		1.3 J		
	1,1-Dichloroethane	µg/L		14		
	1,1-Dichloroethene	µg/L		1.4 J		
	1,2-Dichloroethane	µg/L		0.28 J		
	cis-1,2-Dichloroethene	µg/L		27		
	trans-1,2-Dichloroethene	µg/L		11		
	Trichloroethene	µg/L		20		
X740-09B	1,1,1-Trichloroethane	µg/L		140 J		2.9 J
	1,1-Dichloroethane	µg/L		400 U		20
	1,1-Dichloroethene	µg/L		1000		530
	1,2-Dichloroethane	µg/L		200 J		110
	Chloroform	µg/L		400 U		2.5 J
	cis-1,2-Dichloroethene	µg/L		400 U		14 J
	Tetrachloroethene	µg/L		100 J		68
	Trichloroethene	µg/L		4800		2900
X740-10G	1,1,1-Trichloroethane	µg/L		7.8 J		17
	1,1-Dichloroethane	µg/L		2.5 J		4.9
	1,1-Dichloroethene	µg/L		41		92
	1,1-Dichloroethene	µg/L		41		77
	1,2-Dichloroethane	µg/L		9.7 J		15
	Acetone	µg/L		50 U		35 B

**Table 4.13. Volatile organic compounds detected at the X-740 Waste Oil Handling Facility (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X740-10G	Benzene	µg/L		10 U		0.18 J
	Chloroform	µg/L		0.88 J		1.5 J
	cis-1,2-Dichloroethene	µg/L		1 J		2.4
	Tetrachloroethene	µg/L		3.1 J		7.4
	Trichloroethene	µg/L		200		380
X740-11G	1,1,1-Trichloroethane	µg/L		0.99 J		0.74 J
	1,1-Dichloroethane	µg/L		0.44 J		0.34 J
	1,1-Dichloroethene	µg/L		6.4		5.2
	1,2-Dichloroethane	µg/L		2.2		1.7 J
	Chloroform	µg/L		0.2 J		2 U
	Trichloroethene	µg/L		16		17
X740-13G	Acetone	µg/L		10 U		26 B
	Trichloroethene	µg/L		2 U		0.34 J
X740-14B	1,1,1-Trichloroethane	µg/L		2.7		2 U
	1,1-Dichloroethane	µg/L		0.86 J		2 U
	1,1-Dichloroethene	µg/L		12		1 J
	1,2-Dichloroethane	µg/L		7.8		2 U
	Acetone	µg/L		5.7 J		3.6 J
	Chloroform	µg/L		0.72 J		2 U
	cis-1,2-Dichloroethene	µg/L		0.21 J		2 U
	Methylene chloride	µg/L		0.53 BJ		2 U
	Trichloroethene	µg/L		40		6
X740-PZ10G	1,1,1-Trichloroethane	µg/L		2.1		3.2
	1,1-Dichloroethane	µg/L		0.45 J		0.46 J
	1,1-Dichloroethene	µg/L		5.1		7.3
	1,2-Dichloroethane	µg/L		1.3 J		1.9 J
	Acetone	µg/L		10 U		9.5 BJ
	Chloroform	µg/L		2 U		0.17 J
	cis-1,2-Dichloroethene	µg/L		0.19 J		2 U
	Tetrachloroethene	µg/L		0.83 J		0.93 J
	Trichloroethene	µg/L		39		50
X740-PZ12G	1,1,1-Trichloroethane	µg/L		5 J		5.1
	1,1-Dichloroethane	µg/L		1.1 J		1.2 J
	1,1-Dichloroethene	µg/L		32		26
	1,2-Dichloroethane	µg/L		7.4 J		7.7
	Acetone	µg/L		40 U		2.2 J
	Chloroform	µg/L		0.64 J		0.75 J
	cis-1,2-Dichloroethene	µg/L		8 U		0.28 J

**Table 4.13. Volatile organic compounds detected at the X-740 Waste Oil Handling Facility (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X740-PZ12G	Tetrachloroethene	µg/L		1.2 J		1.2 J
	Trichloroethene	µg/L		150		170
X740-PZ14G	1,1,1-Trichloroethane	µg/L		3.9 J		2.8
	1,1-Dichloroethane	µg/L		1.2 J		0.98 J
	1,1-Dichloroethene	µg/L		27		22
	1,2-Dichloroethane	µg/L		6.9 J		5.6
	Acetone	µg/L		40 U		7.8 BJ
	Chloroform	µg/L		0.65 J		0.49 J
	cis-1,2-Dichloroethene	µg/L		8 U		0.28 J
	Tetrachloroethene	µg/L		8 U		0.43 J
	Trichloroethene	µg/L		110		67
	1,1,1-Trichloroethane	µg/L		2.3		2.7
X740-PZ17G	1,1-Dichloroethane	µg/L		0.6 J		0.65 J
	1,1-Dichloroethene	µg/L		15		14
	1,2-Dichloroethane	µg/L		3.8		4.2
	Acetone	µg/L		10 U		8.1 BJ
	Chloroform	µg/L		0.36 J		0.42 J
	cis-1,2-Dichloroethene	µg/L		2 U		0.16 J
	Methylene chloride	µg/L		2 U		0.36 BJ
	Toluene	µg/L		2 U		0.35 J
	Trichloroethene	µg/L		38		45

**Table 4.14. Results for radionuclides at the X-740 Waste Oil Handling Facility**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X740-01G	Americium-241	pCi/L	-0.017 U			
	Neptunium-237	pCi/L	0.0123 U			
	Plutonium-238	pCi/L	0 U			
	Plutonium-239/240	pCi/L	0 U			
	Technetium-99	pCi/L	1.17 U			
	Uranium	$\mu\text{g}/\text{L}$	0.02823 U			
	Uranium-233/234	pCi/L	0.00951 U			
	Uranium-235	pCi/L	0 U			
	Uranium-236	pCi/L	0 U			
	Uranium-238	pCi/L	0.00949 U			
X740-02G	Americium-241	pCi/L	0.01011 U			
	Neptunium-237	pCi/L	-0.0081 U			
	Plutonium-238	pCi/L	0.03228 U			
	Plutonium-239/240	pCi/L	0.01615 U			
	Technetium-99	pCi/L	1.77 U			
	Uranium	$\mu\text{g}/\text{L}$	10.17			
	Uranium-233/234	pCi/L	4.309			
	Uranium-235	pCi/L	0.247			
	Uranium-236	pCi/L	0.02112 U			
	Uranium-238	pCi/L	3.397			
X740-03G	Americium-241	pCi/L	1.9E-05 U		7.38E-06 U	
	Neptunium-237	pCi/L	0.00742 U		0.007491 U	
	Plutonium-238	pCi/L	0.00014 U		0.0224 U	
	Plutonium-239/240	pCi/L	0.00741 U		7.46E-06 U	
	Technetium-99	pCi/L	0.0704 U		-0.968 U	
	Uranium	$\mu\text{g}/\text{L}$	5.581		5.146	
	Uranium-233/234	pCi/L	2.418		2.054	
	Uranium-235	pCi/L	0.08551		0.05488	
	Uranium-236	pCi/L	0.00853 U		0 U	
	Uranium-238	pCi/L	1.868		1.724	
X740-04G	Americium-241	pCi/L	0.0311 U			
	Neptunium-237	pCi/L	0.01155 U			
	Plutonium-238	pCi/L	0.01152 U			
	Plutonium-239/240	pCi/L	1.2E-05 U			
	Technetium-99	pCi/L	-0.157 U			
	Uranium	$\mu\text{g}/\text{L}$	0.7617			
	Uranium-233/234	pCi/L	0.3416			
	Uranium-235	pCi/L	-0.0228 U			

**Table 4.14. Results for radionuclides at the X-740 Waste Oil Handling Facility (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X740-04G	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.258		
X740-05G	Americium-241	pCi/L		-0.0099 U		
	Neptunium-237	pCi/L		-0.0424 U		
X740-05G	Plutonium-238	pCi/L		0.00847 U		
	Plutonium-239/240	pCi/L		0 U		
X740-05G	Technetium-99	pCi/L		-5.3 U		
	Uranium	$\mu\text{g}/\text{L}$		5.94		
X740-05G	Uranium-233/234	pCi/L		2.288		
	Uranium-235	pCi/L		0.1049		
X740-05G	Uranium-236	pCi/L		-0.0094 U		
	Uranium-238	pCi/L		1.987		
X740-06G	Americium-241	pCi/L		-0.0099 U		
	Neptunium-237	pCi/L		-0.0083 U		
X740-06G	Plutonium-238	pCi/L		-0.0083 U		
	Plutonium-239/240	pCi/L		0 U		
X740-06G	Technetium-99	pCi/L		1.51 U		
	Uranium	$\mu\text{g}/\text{L}$		0.4422		
X740-06G	Uranium-233/234	pCi/L		0.09307		
	Uranium-235	pCi/L		1.1E-05 U		
X740-06G	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.1486		
X740-07B	Americium-241	pCi/L		0.00870 U		
	Neptunium-237	pCi/L		0 U		
X740-07B	Plutonium-238	pCi/L		1.5E-05 U		
	Plutonium-239/240	pCi/L		7.5E-06 U		
X740-07B	Technetium-99	pCi/L		0.552 U		
	Uranium	$\mu\text{g}/\text{L}$		0.03008 U		
X740-07B	Uranium-233/234	pCi/L		9.1E-06 U		
	Uranium-235	pCi/L		0.01125 U		
X740-07B	Uranium-236	pCi/L		0 U		
	Uranium-238	pCi/L		0.00911 U		
X740-08G	Americium-241	pCi/L		-0.0080 U		
	Neptunium-237	pCi/L		7.7E-06 U		
X740-08G	Plutonium-238	pCi/L		0.00768 U		
	Plutonium-239/240	pCi/L		0.00768 U		
X740-08G	Technetium-99	pCi/L		-1.31 U		
	Uranium	$\mu\text{g}/\text{L}$		2.49		

**Table 4.14. Results for radionuclides at the X-740 Waste Oil Handling Facility (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X740-08G	Uranium-233/234	pCi/L	1.033			
	Uranium-235	pCi/L	0.03324 U			
	Uranium-236	pCi/L	0.00995 U			
	Uranium-238	pCi/L	0.8337			
X740-09B	Americium-241	pCi/L	0.04688 U		0.01644 U	
	Neptunium-237	pCi/L	0.00993 U		7.87E-06 U	
	Plutonium-238	pCi/L	0.00992 U		0.02357 U	
	Plutonium-239/240	pCi/L	0 U		-0.00785 U	
	Technetium-99	pCi/L	-3.41 U		-1.76 U	
	Uranium	µg/L	0.9282		0.9922	
	Uranium-233/234	pCi/L	0.382		0.5828	
	Uranium-235	pCi/L	0 U		0 U	
X740-10G	Uranium-236	pCi/L	0 U		7.87E-06 U	
	Uranium-238	pCi/L	0.3119		0.3334	
	Americium-241	pCi/L	1.9E-05 U		0.01671 U	
	Neptunium-237	pCi/L	-0.0493 U		0.01389 U	
	Plutonium-238	pCi/L	0.00985 U		0.01386 U	
	Plutonium-239/240	pCi/L	-0.0098 U		-0.00692 U	
	Technetium-99	pCi/L	-5.06 U		3.71 U	
	Uranium	µg/L	3.084		2.253	
X740-11G	Uranium-233/234	pCi/L	1.382		0.8178	
	Uranium-235	pCi/L	0.05205 U		0.02522 U	
	Uranium-236	pCi/L	0 U		7.54E-06 U	
	Uranium-238	pCi/L	1.032		0.7549	
	Americium-241	pCi/L	0.0103 U		0.01494 U	
	Neptunium-237	pCi/L	2.6E-05 U		6.97E-06 U	
	Plutonium-238	pCi/L	0 U		0.01391 U	
	Plutonium-239/240	pCi/L	0.00859 U		0.006961 U	
X740-12B	Technetium-99	pCi/L	3.05 U		1.57 U	
	Uranium	µg/L	0.2999		0.6353	
	Uranium-233/234	pCi/L	0.162		0.1857	
	Uranium-235	pCi/L	0.0222 U		0.008482 U	
	Uranium-236	pCi/L	0 U		0 U	
	Uranium-238	pCi/L	0.0988		0.2127	
	Americium-241	pCi/L	0.00976 U		7.69E-06 U	
	Neptunium-237	pCi/L	-0.0174 U		0 U	

**Table 4.14. Results for radionuclides at the X-740 Waste Oil Handling Facility (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X740-12B	Technetium-99	pCi/L		2.49 U		2.42 U
	Uranium	µg/L		0.1247 U		0.08629 U
	Uranium-233/234	pCi/L		0.04202 U		0.1088
	Uranium-235	pCi/L		0 U		0 U
	Uranium-236	pCi/L		0 U		0.008033 U
	Uranium-238	pCi/L		0.04191 U		0.02895 U
	Americium-241	pCi/L		0.01726 U		2.22E-05 U
	Neptunium-237	pCi/L		-0.0648 U		-0.0072 U
X740-13G	Plutonium-238	pCi/L		0.05174 U		0.007222 U
	Plutonium-239/240	pCi/L		-0.0129 U		0 U
	Technetium-99	pCi/L		-3.28 U		2.95 U
	Uranium	µg/L		0.2766		0.1421
	Uranium-233/234	pCi/L		0.05113 U		0.08968
	Uranium-235	pCi/L		0.01261 U		0 U
	Uranium-236	pCi/L		0 U		0 U
	Uranium-238	pCi/L		0.09182		0.04773
X740-14B	Americium-241	pCi/L		0.02129 U		2.18E-05 U
	Neptunium-237	pCi/L		-0.0195 U		-0.03594 U
	Plutonium-238	pCi/L		0.00974 U		0.007176 U
	Plutonium-239/240	pCi/L		0.00974 U		0 U
	Technetium-99	pCi/L		0.606 U		1.22 U
	Uranium	µg/L		2.223		0.3309
	Uranium-233/234	pCi/L		1.638		0.2075
	Uranium-235	pCi/L		0.02391 U		0.02133 U
X740-PZ10G	Uranium-236	pCi/L		0 U		0 U
	Uranium-238	pCi/L		0.7448		0.1093
	Americium-241	pCi/L		0 U		7.2E-06 U
	Neptunium-237	pCi/L		0.00781 U		-0.00679 U
	Plutonium-238	pCi/L		1.6E-05 U		0.01357 U
	Plutonium-239/240	pCi/L		0.01556 U		-0.02033 U
	Technetium-99	pCi/L		1.09 U		1.68 U
	Uranium	µg/L		0.176		0.5731
X740-PZ12G	Uranium-233/234	pCi/L		0.1015		0.1061
	Uranium-235	pCi/L		0 U		0.008177 U
	Uranium-236	pCi/L		0.00937 U		0 U
	Uranium-238	pCi/L		0.0591		0.1918
	Americium-241	pCi/L		-0.0220 U		-0.01429 U
	Neptunium-237	pCi/L		-0.0090 U		-0.0445 U

**Table 4.14. Results for radionuclides at the X-740 Waste Oil Handling Facility (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X740-PZ12G	Plutonium-238	pCi/L	0.00900 U			0.007411 U
	Plutonium-239/240	pCi/L	0.01799 U			-0.0074 U
	Technetium-99	pCi/L	-2.92 U			1.12 U
	Uranium	$\mu\text{g}/\text{L}$	0.2034			0.2891
	Uranium-233/234	pCi/L	0.1662			0.1312
	Uranium-235	pCi/L	0 U			0.02207 U
	Uranium-236	pCi/L	0.01083 U			-0.0066 U
	Uranium-238	pCi/L	0.06828			0.09522
X740-PZ14G	Americium-241	pCi/L	-0.0093 U			0.00712 U
	Neptunium-237	pCi/L	-0.0086 U			-0.04512 U
	Plutonium-238	pCi/L	8.5E-06 U			0.007514 U
	Plutonium-239/240	pCi/L	-0.0085 U			-0.0225 U
	Technetium-99	pCi/L	-1.27 U			3.31 U
	Uranium	$\mu\text{g}/\text{L}$	2.315			1.68
	Uranium-233/234	pCi/L	0.9804			0.7498
	Uranium-235	pCi/L	0.04398 U			0.03613
	Uranium-236	pCi/L	0 U			0 U
	Uranium-238	pCi/L	0.7739			0.5612
	Americium-241	pCi/L	0.01921 U			0.006964 U
	Neptunium-237	pCi/L	-0.0213 U			-0.02365 U
X740-PZ17G	Plutonium-238	pCi/L	-0.0106 U			0.007877 U
	Plutonium-239/240	pCi/L	0.01061 U			-0.00785 U
	Technetium-99	pCi/L	-0.491 U			8.44 U
	Uranium	$\mu\text{g}/\text{L}$	2.634			3.321
	Uranium-233/234	pCi/L	0.835			1.345
	Uranium-235	pCi/L	0.02452 U			0.04878
	Uranium-236	pCi/L	0 U			0 U
	Uranium-238	pCi/L	0.8829			1.112

**Table 4.15. Results for beryllium and chromium at the X-611A Former Lime Sludge Lagoons**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
F-07G	Beryllium	µg/L	4.5B		5.8	
	Chromium	µg/L	8.8B		3.1B	
F-08B	Beryllium	µg/L	5U		1U	
	Chromium	µg/L	10U		1.3B	
X611-01B	Beryllium	µg/L	5U		1U	
	Chromium	µg/L	2.5B		2.8	
X611-02BA	Beryllium	µg/L	5U		1U	
	Chromium	µg/L	1.4B		1.5B	
X611-03G	Beryllium	µg/L	5U		1U	
	Chromium	µg/L	10U		1.2B	
X611-04BA	Beryllium	µg/L	5U		0.13B	
	Chromium	µg/L	5.8B		2.2	

**Table 4.16. Volatile organic compounds detected at the X-735 Landfills**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X735-01GA	Acetone	µg/L		4.8 J		
X735-03GA	Acetone	µg/L		14		
X735-19G	Acetone	µg/L		160		
X735-20B	Acetone	µg/L		5.1 J		
X735-21G	Acetone	µg/L		12		
X737-07B	Acetone	µg/L		13		
X737-08B	Benzene	µg/L		0.19 J		
	Toluene	µg/L		0.4 J		

**Table 4.17. Results for radionuclides at the X-735 Landfills**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X735-01GA	Americium-241	pCi/L		-0.0099 U		0 U
	Neptunium-237	pCi/L		0.01684 U		7.34E-06 U
	Plutonium-238	pCi/L		8.4E-06 U		0.02932 U
	Plutonium-239/240	pCi/L		0.0168 U		0.01467 U
	Technetium-99	pCi/L		1.94 U		0.619 U
	Uranium	µg/L		0.1 U		0.09667
	Uranium-233/234	pCi/L		8.6E-06 U		0.03906
	Uranium-235	pCi/L		-0.0107 U		8.02E-06 U
	Uranium-236	pCi/L		0 U		0 U
	Uranium-238	pCi/L		0.03456 U		0.03248
X735-02GA	Americium-241	pCi/L		-0.0107 U		0.008652 U
	Neptunium-237	pCi/L		8.2E-06 U		0.01547 U
	Plutonium-238	pCi/L		0.01642 U		0.06168 U
	Plutonium-239/240	pCi/L		0 U		7.70E-06 U
	Technetium-99	pCi/L		-0.9 U		2.96 U
	Uranium	µg/L		0.05285 U		0.03875 U
	Uranium-233/234	pCi/L		0.0179 U		0.0652
	Uranium-235	pCi/L		1.1E-05 U		0 U
	Uranium-236	pCi/L		-0.0099 U		0 U
	Uranium-238	pCi/L		0.01781 U		0.01302 U
X735-03GA	Americium-241	pCi/L		-0.0113 U		-0.0078 U
	Neptunium-237	pCi/L		0.03037 U		-0.00745 U
	Plutonium-238	pCi/L		0.0101 U		-0.01485 U
	Plutonium-239/240	pCi/L		0.0101 U		0.01487 U
	Technetium-99	pCi/L		6.84 U		-0.0731 U
	Uranium	µg/L		0.05205 U		0.06402 U
	Uranium-233/234	pCi/L		0.04148 U		0.02159 U
	Uranium-235	pCi/L		0.01022 U		0 U
	Uranium-236	pCi/L		0 U		-0.00796 U
	Uranium-238	pCi/L		0.01657 U		0.02155 U
X735-04GA	Americium-241	pCi/L		-0.0120 U		0.01536 U
	Neptunium-237	pCi/L		0 U		-0.02827 U
	Plutonium-238	pCi/L		1.1E-05 U		-0.01406 U
	Plutonium-239/240	pCi/L		0.02213 U		0 U
	Technetium-99	pCi/L		-2.52 U		3.41 U
	Uranium	µg/L		0.08176 U		0.002085 U
	Uranium-233/234	pCi/L		4.7E-05 U		0.02519 U
	Uranium-235	pCi/L		-0.0117 U		0.007768 U

**Table 4.17. Results for radionuclides at the X-735 Landfills (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X735-04GA	Uranium-236	pCi/L	0.03146 U			0 U
	Uranium-238	pCi/L	0.02835 U			6.28E-06 U
X735-05GA	Americium-241	pCi/L	0.02007 U			0.02568 U
	Neptunium-237	pCi/L	-0.0376 U			-0.02644 U
X735-05GA	Plutonium-238	pCi/L	0.01875 U			0 U
	Plutonium-239/240	pCi/L	0.02811 U			0 U
X735-05GA	Technetium-99	pCi/L	-1.78 U			0 U
	Uranium	µg/L	0.1276			0.1864
X735-05GA	Uranium-233/234	pCi/L	0.09451			0.04191 U
	Uranium-235	pCi/L	0 U			0 U
X735-05GA	Uranium-236	pCi/L	0 U			-0.00772 U
	Uranium-238	pCi/L	0.04287			0.06269
X735-06GAA	Americium-241	pCi/L	0.02095 U			0.008095 U
	Neptunium-237	pCi/L	0 U			-0.00707 U
X735-06GAA	Plutonium-238	pCi/L	0.01828 U			-0.00704 U
	Plutonium-239/240	pCi/L	0 U			0 U
X735-06GAA	Technetium-99	pCi/L	3.98 U			1.91 U
	Uranium	µg/L	0.0496 U			0.1257
X735-06GAA	Uranium-233/234	pCi/L	0.05842 U			0.04938
	Uranium-235	pCi/L	0 U			0 U
X735-06GAA	Uranium-236	pCi/L	0 U			0 U
	Uranium-238	pCi/L	0.01666 U			0.04224
X735-13GA	Americium-241	pCi/L	-0.0561 U			7.35E-06 U
	Neptunium-237	pCi/L	-0.0083 U			0.01453 U
X735-13GA	Plutonium-238	pCi/L	0.02474 U			0.02172 U
	Plutonium-239/240	pCi/L	-0.0165 U			7.23E-06 U
X735-13GA	Technetium-99	pCi/L	2.03 U			-1.96 U
	Uranium	µg/L	0.0466 U			0.01982 U
X735-13GA	Uranium-233/234	pCi/L	2.4E-05 U			-0.01345 U
	Uranium-235	pCi/L	0 U			0 U
X735-13GA	Uranium-236	pCi/L	-0.0087 U			-0.01493 U
	Uranium-238	pCi/L	0.0157 U			0.006739 U
X735-16B	Americium-241	pCi/L	0 U			0.007813 U
	Neptunium-237	pCi/L	-0.0103 U			1.27E-05 U
X735-16B	Plutonium-238	pCi/L	-0.0103 U			0.02536 U
	Plutonium-239/240	pCi/L	-0.0103 U			6.33E-06 U
X735-16B	Technetium-99	pCi/L	3.43 U			-3.51 U
	Uranium	µg/L	0.1067 U			0.0497 U

**Table 4.17. Results for radionuclides at the X-735 Landfills (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X735-16B	Uranium-233/234	pCi/L		0.06286 U		0.01435 U
	Uranium-235	pCi/L		0 U		0.02647 U
	Uranium-236	pCi/L		0 U		0.007923 U
	Uranium-238	pCi/L		0.03584 U		0.0143 U
X735-17B	Americium-241	pCi/L		0.00873 U		-0.00855 U
	Neptunium-237	pCi/L		0.0166 U		-0.01442 U
	Plutonium-238	pCi/L		0 U		7.2E-06 U
	Plutonium-239/240	pCi/L		0.01656 U		0.007201 U
	Technetium-99	pCi/L		2.78 U		1.23 U
	Uranium	µg/L		0.287		0.1532
	Uranium-233/234	pCi/L		0.1995		0.05229 U
X735-18B	Uranium-235	pCi/L		0.00984 U		-0.00805 U
	Uranium-236	pCi/L		0 U		0.01446 U
	Uranium-238	pCi/L		0.09556		0.05212
	Americium-241	pCi/L		-0.0086 U		0.007911 U
	Neptunium-237	pCi/L		-0.0089 U		0 U
	Plutonium-238	pCi/L		-0.0089 U		7.37E-06 U
	Plutonium-239/240	pCi/L		0.00892 U		0.01474 U
X735-19G	Technetium-99	pCi/L		5.45 U		0.994 U
	Uranium	µg/L		0.3229		9.99E-10 U
	Uranium-233/234	pCi/L		0.1321		6.24E-06 U
	Uranium-235	pCi/L		0 U		0 U
	Uranium-236	pCi/L		0 U		0 U
	Uranium-238	pCi/L		0.1085		0 U
	Americium-241	pCi/L		0.01013 U		0.04339 U
	Neptunium-237	pCi/L		-0.0079 U		-0.03162 U
	Plutonium-238	pCi/L		0.01586 U		0.0158 U
	Plutonium-239/240	pCi/L		0 U		0.01581 U
X735-20B	Technetium-99	pCi/L		-0.109 U		-1.76 U
	Uranium	µg/L		0.08525 U		0.0556 U
	Uranium-233/234	pCi/L		0.06698 U		-0.00644 U
	Uranium-235	pCi/L		0 U		-0.008 U
	Uranium-236	pCi/L		0 U		-0.00718 U
	Uranium-238	pCi/L		0.02864 U		0.01944 U
	Americium-241	pCi/L		9.6E-06 U		0.008535 U
X735-21B	Neptunium-237	pCi/L		-0.0077 U		-0.00665 U
	Plutonium-238	pCi/L		0.02319 U		0.0133 U
	Plutonium-239/240	pCi/L		-0.0154 U		0.006654 U

**Table 4.17. Results for radionuclides at the X-735 Landfills (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X735-20B	Technetium-99	pCi/L	9.23		0.0873 U	
	Uranium	µg/L	0.1627		0.1264 U	
	Uranium-233/234	pCi/L	0.04691		0.04257 U	
	Uranium-235	pCi/L	0 U		0 U	
	Uranium-236	pCi/L	0.00866 U		0.00785 U	
	Uranium-238	pCi/L	0.05462		0.04244 U	
X735-21G	Americium-241	pCi/L	1.0E-05 U		7.87E-06 U	
	Neptunium-237	pCi/L	-0.0086 U		7.19E-06 U	
	Plutonium-238	pCi/L	0 U		0.007184 U	
	Plutonium-239/240	pCi/L	0.00855 U		-0.00717 U	
	Technetium-99	pCi/L	4.53 U		2.87 U	
	Uranium	µg/L	0.5229		0.3374	
X737-05B	Uranium-233/234	pCi/L	0.2161		0.149	
	Uranium-235	pCi/L	0 U		0 U	
	Uranium-236	pCi/L	0 U		0.007861 U	
	Uranium-238	pCi/L	0.1757		0.1133	
	Americium-241	pCi/L	-0.0087 U		-0.01473 U	
	Neptunium-237	pCi/L	-0.0320 U		-0.01952 U	
X737-06G	Plutonium-238	pCi/L	0.02399 U		0.03897 U	
	Plutonium-239/240	pCi/L	0 U		0.006494 U	
	Technetium-99	pCi/L	5.57 U		3.53 U	
	Uranium	µg/L	-0.0001 U		0.0367 U	
	Uranium-233/234	pCi/L	-0.0177 U		0.03911	
	Uranium-235	pCi/L	0 U		-0.00803 U	
X737-07B	Uranium-236	pCi/L	-0.0098 U		0.00722 U	
	Uranium-238	pCi/L	8.9E-06 U		0.01301 U	
	Americium-241	pCi/L	0.02723 U		0.01339 U	
	Neptunium-237	pCi/L	-0.0087 U		-0.0066 U	
	Plutonium-238	pCi/L	0.00872 U		0.006595 U	
	Plutonium-239/240	pCi/L	0 U		0 U	
	Technetium-99	pCi/L	-7.67 U		6.45 U	
	Uranium	µg/L	0.07438 U		0.01628 U	
	Uranium-233/234	pCi/L	0.04175 U		0.006159 U	
	Uranium-235	pCi/L	0 U		-0.00758 U	
	Uranium-236	pCi/L	0 U		6.81E-06 U	
	Uranium-238	pCi/L	0.02499 U		0.006147 U	
	Americium-241	pCi/L	-0.0083 U		-0.00766 U	
	Neptunium-237	pCi/L	0.0149 U		6.25E-06 U	

**Table 4.17. Results for radionuclides at the X-735 Landfills (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X737-07B	Plutonium-238	pCi/L		7.4E-06 U		0.01871 U
	Plutonium-239/240	pCi/L		0.00743 U		-0.00623 U
	Technetium-99	pCi/L		5.03 U		2.66 U
	Uranium	µg/L		0.02302 U		0.003689 U
	Uranium-233/234	pCi/L		-0.0385 U		0.05801
	Uranium-235	pCi/L		0 U		0.007951 U
	Uranium-236	pCi/L		0.00854 U		0 U
	Uranium-238	pCi/L		0.00769 U		0 U
X737-08B	Americium-241	pCi/L		0.00918 U		0.0154 U
	Neptunium-237	pCi/L		-0.0079 U		0.007778 U
	Plutonium-238	pCi/L		0.01572 U		0.000031 U
	Plutonium-239/240	pCi/L		0.02358 U		1.55E-05 U
	Technetium-99	pCi/L		1.59 U		-0.778 U
	Uranium	µg/L		0.3102		0.1858
	Uranium-233/234	pCi/L		0.5018		0.3549
	Uranium-235	pCi/L		0.00983 U		0 U
X737-09G	Uranium-236	pCi/L		0 U		-0.0154 U
	Uranium-238	pCi/L		0.1033		0.0625
	Americium-241	pCi/L		0.01969 U		0.01707 U
	Neptunium-237	pCi/L		-0.0077 U		0.007842 U
	Plutonium-238	pCi/L		0.02309 U		0.007828 U
	Plutonium-239/240	pCi/L		-0.0077 U		0.01564 U
	Technetium-99	pCi/L		1.12 U		4.69 U
	Uranium	µg/L		0.1201 U		0.05827 U
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	Uranium-233/234	pCi/L		0.1186		0.05222
	Uranium-235	pCi/L		0.00976 U		0 U
	Uranium-236	pCi/L		0 U		0.007229 U
	Uranium-238	pCi/L		0.03947 U		0.01954 U

**Table 4.18. Volatile organic compounds detected at the X-734 Landfills**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
RSY-02B	Acetone	µg/L			10 U	4.2 J
X734-01G	Acetone	µg/L		10 U		3.4 J
X734-03G	1,1-Dichloroethane	µg/L		0.92 J		0.46 J
	1,4-Dichlorobenzene	µg/L		1.7 J		1.2 J
	Chlorobenzene	µg/L		0.7 J		2 U
	Chloroethane	µg/L		0.63 J		2 U
	Chloromethane	µg/L		0.76 J		2 U
X734-05B	1,2-Dimethylbenzene	µg/L		2 U		0.52 J
	Benzene	µg/L		0.71 J		1.2 J
	Ethylbenzene	µg/L		0.2 J		0.78 J
	M + P Xylene	µg/L		2 U		0.35 J
X734-06G	Acetone	µg/L		10 U		2.5 J
X734-10G	Acetone	µg/L		10 U		2.9 J
X734-14G	Acetone	µg/L		10 U		2.9 J
X734-15G	1,1-Dichloroethane	µg/L		0.47 J		0.72 J
	Acetone	µg/L		10 U		2.3 J
X734-18G	1,1-Dichloroethane	µg/L			0.19 J	2 U
X734-23G	Benzene	µg/L		0.17 J		2 U
	cis-1,2-Dichloroethene	µg/L		18		13
	trans-1,2-Dichloroethene	µg/L		0.86		0.62 J
	Trichloroethene	µg/L		2 U		0.21 J
	Vinyl chloride	µg/L		6.1		3.5

**Table 4.19. Results for radionuclides at the X-734 Landfills**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
RSY-02B	Americium-241	pCi/L				0.01615 U
	Neptunium-237	pCi/L				3.96E-05 U
	Plutonium-238	pCi/L				0.007921 U
	Plutonium-239/240	pCi/L				7.9E-06 U
	Technetium-99	pCi/L				-2.79 U
	Uranium	µg/L				0.08471 U
	Uranium-233/234	pCi/L				0.08556
	Uranium-235	pCi/L				0 U
	Uranium-236	pCi/L				0 U
	Uranium-238	pCi/L				0.02846 U
X734-01G	Americium-241	pCi/L	0.038 U			-0.00771 U
	Neptunium-237	pCi/L	-0.0196 U			0.007474 U
	Plutonium-238	pCi/L	0 U			-0.00742 U
	Plutonium-239/240	pCi/L	-0.0098 U			-0.01486 U
	Technetium-99	pCi/L	2.63 U			4.51 U
	Uranium	µg/L	0.03258 U			0.08226 U
	Uranium-233/234	pCi/L	0.1086			0.1278
	Uranium-235	pCi/L	0.01218 U			0.008297 U
	Uranium-236	pCi/L	0 U			0.00745 U
	Uranium-238	pCi/L	0.00986 U			0.02686 U
X734-02B	Americium-241	pCi/L	-0.0202 U			0.008822 U
	Neptunium-237	pCi/L	8E-06 U			-0.00718 U
	Plutonium-238	pCi/L	0.01595 U			7.16E-06 U
	Plutonium-239/240	pCi/L	-0.0239 U			7.16E-06 U
	Technetium-99	pCi/L	-2.76 U			2.39 U
	Uranium	µg/L	0.1127 U			0.04343 U
	Uranium-233/234	pCi/L	0.09475			0.04595 U
	Uranium-235	pCi/L	0 U			0.01619 U
	Uranium-236	pCi/L	0.0105 U			0.00727 U
	Uranium-238	pCi/L	0.03782 U			0.01311 U
X734-03G	Americium-241	pCi/L	0.009 U			0 U
	Neptunium-237	pCi/L	-0.0431 U			0 U
	Plutonium-238	pCi/L	0 U			0.006955 U
	Plutonium-239/240	pCi/L	0.00718 U			0.006955 U
	Technetium-99	pCi/L	-5.8 U			1.12 U
	Uranium	µg/L	1.867			1.814
	Uranium-233/234	pCi/L	1.551			1.309
	Uranium-235	pCi/L	0.07085			0.04161

**Table 4.19. Results for radionuclides at the X-734 Landfills (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X734-03G	Uranium-236	pCi/L		1.1E-05 U		0.007472 U
	Uranium-238	pCi/L		0.621		0.6059
X734-04G	Americium-241	pCi/L		0.01003 U		0.009104 U
	Neptunium-237	pCi/L		-0.0164 U		-0.02081 U
X734-04G	Plutonium-238	pCi/L		0.02451 U		0.01386 U
	Plutonium-239/240	pCi/L		0.02451 U		0.01385 U
X734-04G	Technetium-99	pCi/L		-2.34 U		0.153 U
	Uranium	µg/L		2.541		1.773
X734-04G	Uranium-233/234	pCi/L		0.8874		0.7259
	Uranium-235	pCi/L		1.3E-05 U		0.008003 U
X734-04G	Uranium-236	pCi/L		0 U		0.007179 U
	Uranium-238	pCi/L		0.8537		0.5951
X734-05B	Americium-241	pCi/L		0 U		-0.01642 U
	Neptunium-237	pCi/L		-0.0364 U		-0.00717 U
X734-05B	Plutonium-238	pCi/L		-0.0091 U		0.01435 U
	Plutonium-239/240	pCi/L		-0.0091 U		0 U
X734-05B	Technetium-99	pCi/L		-0.497 U		1.24 U
	Uranium	µg/L		0.9367		1.44
X734-05B	Uranium-233/234	pCi/L		1.959		1.174
	Uranium-235	pCi/L		0.07144		0.06657
X734-05B	Uranium-236	pCi/L		0 U		0 U
	Uranium-238	pCi/L		0.3083		0.478
X734-06G	Americium-241	pCi/L		0 U		0.02191 U
	Neptunium-237	pCi/L		-0.0081 U		0 U
X734-06G	Plutonium-238	pCi/L		0 U		-0.00712 U
	Plutonium-239/240	pCi/L		0 U		-0.00713 U
X734-06G	Technetium-99	pCi/L		-0.742 U		-0.636 U
	Uranium	µg/L		0.02628 U		0.1204
X734-06G	Uranium-233/234	pCi/L		0.01774 U		0.04813 U
	Uranium-235	pCi/L		0 U		-0.00847 U
X734-06G	Uranium-236	pCi/L		0 U		0.007616 U
	Uranium-238	pCi/L		0.00883 U		0.04117
X734-10G	Americium-241	pCi/L		0.01047 U		0.01751 U
	Neptunium-237	pCi/L		-0.0259 U		0.01457 U
X734-10G	Plutonium-238	pCi/L		8.6E-06 U		-0.01451 U
	Plutonium-239/240	pCi/L		0.00862 U		0 U
X734-10G	Technetium-99	pCi/L		-1.77 U		0.304 U
	Uranium	µg/L		0.3694		0.396

**Table 4.19. Results for radionuclides at the X-734 Landfills (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X734-10G	Uranium-233/234	pCi/L		0.1155		0.1457
	Uranium-235	pCi/L		0 U		0.01712 U
	Uranium-236	pCi/L		0.00984 U		0 U
	Uranium-238	pCi/L		0.1241		0.1315
X734-14G	Americium-241	pCi/L		0.02327 U		0 U
	Neptunium-237	pCi/L		0.02397 U		-0.00715 U
	Plutonium-238	pCi/L		0.03188 U		0.02858 U
	Plutonium-239/240	pCi/L		0.00797 U		-0.00713 U
	Technetium-99	pCi/L		4.02 U		1.81 U
	Uranium	µg/L		0.5624		0.9089
	Uranium-233/234	pCi/L		0.2164		0.3053
	Uranium-235	pCi/L		0 U		0.008558 U
X734-15G	Uranium-236	pCi/L		0 U		0 U
	Uranium-238	pCi/L		0.189		0.3046
	Americium-241	pCi/L		0.01027 U		-0.00749 U
	Neptunium-237	pCi/L		-0.0091 U		-0.01444 U
	Plutonium-238	pCi/L		0.01817 U		7.20E-06 U
	Plutonium-239/240	pCi/L		-0.0091 U		0 U
	Technetium-99	pCi/L		0.973 U		-1.53 U
	Uranium	µg/L		0.1055 U		0.1415
X734-18G	Uranium-233/234	pCi/L		0.03552 U		0.1021
	Uranium-235	pCi/L		0 U		0 U
	Uranium-236	pCi/L		0 U		0 U
	Uranium-238	pCi/L		0.03546 U		0.04754
	Americium-241	pCi/L				-0.00771 U
	Neptunium-237	pCi/L				0.01457 U
	Plutonium-238	pCi/L				0.007264 U
	Plutonium-239/240	pCi/L				0 U
X734-20G	Technetium-99	pCi/L				-0.532 U
	Uranium	µg/L				0.8982
	Uranium-233/234	pCi/L				0.7115
	Uranium-235	pCi/L				0.02416 U
	Uranium-236	pCi/L				7.22E-06 U
X734-20G	Uranium-238	pCi/L				0.2996
	Americium-241	pCi/L	0.01006 U			0 U
	Neptunium-237	pCi/L		0 U		-0.00772 U
	Plutonium-238	pCi/L		0 U		0 U
X734-20G	Plutonium-239/240	pCi/L		8.7E-06 U		0.007709 U

**Table 4.19. Results for radionuclides at the X-734 Landfills (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
X734-20G	Technetium-99	pCi/L		-3.59 U		3.7 U
	Uranium	$\mu\text{g}/\text{L}$		0.2894		0.06039 U
	Uranium-233/234	pCi/L		0.1525		0.04068 U
	Uranium-235	pCi/L		0.02352 U		8.35E-06 U
	Uranium-236	pCi/L		0 U		7.5E-06 U
	Uranium-238	pCi/L		0.09516		0.02029 U
X734-22G	Americium-241	pCi/L		0.02174 U		-0.00769 U
	Neptunium-237	pCi/L		0 U		7.87E-06 U
	Plutonium-238	pCi/L		0.00767 U		0 U
	Plutonium-239/240	pCi/L		0.00767 U		0.01571 U
	Technetium-99	pCi/L		-0.583 U		1.68 U
	Uranium	$\mu\text{g}/\text{L}$		1.353		1.248
	Uranium-233/234	pCi/L		0.9191		0.4864
	Uranium-235	pCi/L		0 U		0.01667 U
	Uranium-236	pCi/L		0 U		-0.00748 U
	Uranium-238	pCi/L		0.4545		0.418
X734-23G	Americium-241	pCi/L		0.01795 U		0.04267
	Neptunium-237	pCi/L		0.01413 U		-0.00685 U
	Plutonium-238	pCi/L		0.00705 U		0.006838 U
	Plutonium-239/240	pCi/L		0.00705 U		-0.01366 U
	Technetium-99	pCi/L		1.75 U		-3.07 U
	Uranium	$\mu\text{g}/\text{L}$		0.1304		7.88E-05 U
	Uranium-233/234	pCi/L		0.1054		-0.00667 U
	Uranium-235	pCi/L		0 U		0 U
	Uranium-236	pCi/L		0 U		0 U
	Uranium-238	pCi/L		0.04381		2.68E-05 U

**Table 4.20. Results for cadmium, cobalt, and nickel at the X-533 Switchyard Area**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
F-03G	Cadmium	µg/L		26		42
	Cobalt	µg/L		52		93
	Nickel	µg/L		310		560
TCP-01G	Cadmium	µg/L		17		12
	Cobalt	µg/L		55		47
	Nickel	µg/L		250		160
X533-03G	Cadmium	µg/L		8		13
	Cobalt	µg/L		25		41
	Nickel	µg/L		150		220

**Table 4.21. Volatile organic compounds detected at surface water monitoring locations**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
BRC-SW01	Acetone	µg/L	10 U	2.4 J	10 U	10 U
	Bromodichloromethane	µg/L	2.3	1.8 J	2 U	2.7
	Bromoform	µg/L	0.63 J	0.58 J	2 U	2 U
	Chloroform	µg/L	3.6	3	2 U	3.3
	Chloromethane	µg/L	2.2	2 U	2 U	2 U
	Dibromochloromethane	µg/L	2.2	2.1	2 U	4
	Methylene chloride	µg/L	2 U	0.4 J	2 U	2 U
	Toluene	µg/L	2 U	2 U	2 U	0.42 J
	Acetone	µg/L	10 U	7.6 J	10 U	17
BRC-SW02	Carbon disulfide	µg/L	2 U	2 U	0.88 J	2 U
	Toluene	µg/L	2 U	2 U	2 U	0.62 J
	Chloroform	µg/L	0.28 J			
BRC-SW04	Bromodichloromethane	µg/L	0.17 J			
	Chloroform	µg/L	0.33 J			
	Dibromochloromethane	µg/L	0.15 J			
EDD-SW01	Acetone	µg/L	10 U	43	10 U	7 J
	Bromodichloromethane	µg/L	6.8	1.1 J	2.9	2.6
	Bromoform	µg/L	1.7 J	0.48 J	1.4 J	1.3 J
	Chloroform	µg/L	6.1	2	3	3.1
	cis-1,2-Dichloroethene	µg/L	2 U	0.4 J	2 U	2 U
	Dibromochloromethane	µg/L	6.6	1.4 J	3.6	2.8
	Trichloroethene	µg/L	0.23 J	2 U	2 U	2 U
LBC-SW01	Acetone	µg/L	10 U	12	10 U	4.2 J
	Bromodichloromethane	µg/L	4.4	0.8 J	2.7	2.3
	Bromoform	µg/L	1.1 J	0.36 J	1.3 J	1.1 J
	Chloroform	µg/L	3.9	1.5 J	2.7	2.7
	cis-1,2-Dichloroethene	µg/L	0.14 J	2 U	2 U	2 U
	Dibromochloromethane	µg/L	4.3	1.2 J	3.4	2.7
	Methylene chloride	µg/L	0.29 J	2 U	2 U	2 U
	Trichloroethene	µg/L	0.3 J	2 U	2 U	2 U
LBC-SW02	Acetone	µg/L	10 U	10 U	10 U	3.5 J
	Bromodichloromethane	µg/L	3.6	0.53 J	1.9 J	1.9 J
	Bromoform	µg/L	1 J	2 U	1 J	0.95 J
	Chloroform	µg/L	3.2	1.1 J	2	2.2
	Dibromochloromethane	µg/L	3.4	0.77 J	2.6	2.1
	Methylene chloride	µg/L	0.31 J	2 U	2 U	2 U
	Trichloroethene	µg/L	0.24 J	2 U	2 U	2 U
LBC-SW03	Acetone	µg/L	10 U	10 U	10 U	3.1 J

**Table 4.21. Volatile organic compounds detected at surface water monitoring locations (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
LBC-SW03	Bromodichloromethane	µg/L	1.1 J	2 U	0.23 J	0.33 J
	Bromoform	µg/L	0.58 J	2 U	0.25 J	0.31 J
	Chloroform	µg/L	0.73 J	2 U	0.19 J	0.4 J
	Dibromochloromethane	µg/L	1.5 J	2 U	0.44 J	0.5 J
	Methylene chloride	µg/L	0.39 J	2 U	2 U	2 U
LBC-SW04	Acetone	µg/L	10 U	10 U	10 U	3.1 J
	Bromodichloromethane	µg/L	0.23 J	2 U	2 U	2 U
	Dibromochloromethane	µg/L	0.39 J	2 U	2 U	2 U
	Methylene chloride	µg/L	0.28 J	2 U	2 U	2 U
NHP-SW01	Acetone	µg/L	10 U	10 U	10 U	3.3 J
	Bromoform	µg/L	0.51 J	0.23 J	2 U	2 U
	Dibromochloromethane	µg/L	2 U	0.18 J	2 U	2 U
	Methylene chloride	µg/L	0.3 J	2 U	2 U	2 U
UND-SW01	1,1-Dichloroethane	µg/L	2 U	2 U	2 U	0.28 J
	1,1-Dichloroethene	µg/L	2 U	2 U	2 U	0.44 J
	Acetone	µg/L	10 U	10 U	970	10 U
	cis-1,2-Dichloroethene	µg/L	2 U	2 U	0.18 J	0.5 J
	Methylene chloride	µg/L	2 U	2 U	0.33 BJ	2 U
	Trichloroethene	µg/L	1.1 J	0.38 J	3	7.6
	Trichlorofluoromethane	µg/L	2 U	2 U	2 U	0.66 J
UND-SW02	Acetone	µg/L	11	10 U	160	10 U
WDD-SW01	Acetone	µg/L	10 U	10 U	27	10 U
	Bromodichloromethane	µg/L	0.21 J	0.26 J	0.81 J	0.63 J
	Bromoform	µg/L	2 U	1.6 J	1.4 J	1 J
	Chloroform	µg/L	2 U	2 U	0.46 J	0.53 J
	Dibromochloromethane	µg/L	0.37 J	0.87 J	1.7 J	1.1 J
	Methylene chloride	µg/L	2 U	2 U	0.35 BJ	2 U
WDD-SW02	Acetone	µg/L	4.3 J	10 U	42	10 U
	Methylene chloride	µg/L	2 U	2 U	0.37 BJ	2 U
WDD-SW03	Acetone	µg/L	10 U	3.8 J	7.7 J	10 U
	Bromoform	µg/L	2 U	2 U	2 U	0.27 J
	Chloroform	µg/L	2 U	2 U	2 U	0.19 J
	Dibromochloromethane	µg/L	0.2 J	2 U	2 U	0.24 J
	Methylene chloride	µg/L	2 U	2 U	0.34 BJ	2 U

**Table 4.22. Results for radionuclides at surface water monitoring locations**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
BRC-SW01	Americium-241	pCi/L	0.0203 U	0.01098 U		
	Neptunium-237	pCi/L	0.0083 U	0 U		
	Plutonium-238	pCi/L	0.0166 U	0.02005 U		
	Plutonium-239/240	pCi/L	0.0166 U	0.03008 U		
	Technetium-99	pCi/L	-0.683 U	7.16 U	0.4 U	7.8
	Uranium	µg/L	1.514	0.2829		
	Uranium-233/234	pCi/L	1.246	0.3413		
	Uranium-235	pCi/L	0.0519	0 U		
	Uranium-236	pCi/L	0.028 U	0 U		
	Uranium-238	pCi/L	0.5041	0.09506		
BRC-SW02	Americium-241	pCi/L	0.0085 U	0.01355 U		
	Neptunium-237	pCi/L	9E-06 U	-0.0346 U		
	Plutonium-238	pCi/L	0.0278 U	-0.0171 U		
	Plutonium-239/240	pCi/L	0.0093 U	-0.0086 U		
	Technetium-99	pCi/L	-1.37 U	-3.5 U	-0.8 U	0.93 U
	Uranium	µg/L	1.055	0.09933		
	Uranium-233/234	pCi/L	1.466	0.04582 U		
	Uranium-235	pCi/L	0.0656	0.00808 U		
	Uranium-236	pCi/L	0.0084 U	1.4E-05 U		
	Uranium-238	pCi/L	0.3487	0.03265		
BRC-SW03	Americium-241	pCi/L	0.0096 U			
	Neptunium-237	pCi/L	-0.019 U			
	Plutonium-238	pCi/L	0.0095 U			
	Plutonium-239/240	pCi/L	0 U			
	Technetium-99	pCi/L	0.0436 U			
	Uranium	µg/L	1.457			
	Uranium-233/234	pCi/L	1.715			
	Uranium-235	pCi/L	0.0851			
	Uranium-236	pCi/L	0.0109 U			
	Uranium-238	pCi/L	0.4819			
BRC-SW04	Americium-241	pCi/L	1E-05 U			
	Neptunium-237	pCi/L	0 U			
	Plutonium-238	pCi/L	0.0259 U			
	Plutonium-239/240	pCi/L	0.0173 U			
	Technetium-99	pCi/L	0.809 U			
	Uranium	µg/L	1.463			
	Uranium-233/234	pCi/L	1.884			
	Uranium-235	pCi/L	0.0655			

**Table 4.22. Results for radionuclides at surface water monitoring locations (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
BRC-SW04	Uranium-236	pCi/L	0.0294 U			
	Uranium-238	pCi/L	0.4856			
EDD-SW01	Americium-241	pCi/L	0.0114 U	-0.0087 U		
	Neptunium-237	pCi/L	-0.008 U	9.1E-06 U		
	Plutonium-238	pCi/L	0.0238 U	0 U		
	Plutonium-239/240	pCi/L	0 U	0.00909 U		
	Technetium-99	pCi/L	-0.279 U	-3.36 U	1.5 U	0.07 U
	Uranium	µg/L	0.4747	0.3653		
	Uranium-233/234	pCi/L	0.7969	0.6826		
	Uranium-235	pCi/L	0.0452 U	0.03414 U		
	Uranium-236	pCi/L	0.0102 U	0 U		
	Uranium-238	pCi/L	0.1554	0.1197		
LBC-SW01	Americium-241	pCi/L	0.0209 U	0 U		
	Neptunium-237	pCi/L	-0.008 U	0.0155 U		
	Plutonium-238	pCi/L	0.0244 U	-0.0154 U		
	Plutonium-239/240	pCi/L	0.0244 U	-0.0154 U		
	Technetium-99	pCi/L	2.2 U	0.211 U	0.6 U	4.5
	Uranium	µg/L	0.3033	0.2312		
	Uranium-233/234	pCi/L	0.468	0.6422		
	Uranium-235	pCi/L	0.0597	0.01182 U		
	Uranium-236	pCi/L	-0.009 U	0.01062 U		
	Uranium-238	pCi/L	0.0966	0.07653		
LBC-SW02	Americium-241	pCi/L	0.0094 U	0.00895 U		
	Neptunium-237	pCi/L	-0.017 U	0.0157 U		
	Plutonium-238	pCi/L	0.0167 U	1.6E-05 U		
	Plutonium-239/240	pCi/L	-0.008 U	-0.0078 U		
	Technetium-99	pCi/L	4.14 U	0.232 U	1.7 U	4.49
	Uranium	µg/L	0.4322	0.2912		
	Uranium-233/234	pCi/L	0.6867	0.4618		
	Uranium-235	pCi/L	0.0197 U	0.01 U		
	Uranium-236	pCi/L	9E-06 U	-0.0179 U		
	Uranium-238	pCi/L	0.1434	0.09702		
LBC-SW03	Americium-241	pCi/L	0.0105 U	0.00908 U		
	Neptunium-237	pCi/L	0 U	0.01633 U		
	Plutonium-238	pCi/L	0.0244 U	1.6E-05 U		
	Plutonium-239/240	pCi/L	-0.008 U	-0.0081 U		
	Technetium-99	pCi/L	0.303 U	-0.999 U	0.5 U	5.8
	Uranium	µg/L	0.6057	0.3857		

**Table 4.22. Results for radionuclides at surface water monitoring locations (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
LBC-SW03	Uranium-233/234	pCi/L	0.922	0.6286		
	Uranium-235	pCi/L	0.0217 U	0.00994 U		
	Uranium-236	pCi/L	0 U	0 U		
	Uranium-238	pCi/L	0.2016	0.1287		
LBC-SW04	Americium-241	pCi/L	0.0104 U	0.01068 U		
	Neptunium-237	pCi/L	0 U	0.00871 U		
	Plutonium-238	pCi/L	0.0083 U	8.7E-06 U		
	Plutonium-239/240	pCi/L	0 U	0.00867 U		
	Technetium-99	pCi/L	1.79 U	0.0673 U	1.1 U	2.7
	Uranium	µg/L	0.8228	0.7438		
	Uranium-233/234	pCi/L	1.033	0.9204		
	Uranium-235	pCi/L	0.0299 U	0 U		
	Uranium-236	pCi/L	0 U	0.01788 U		
NHP-SW01	Uranium-238	pCi/L	0.2738	0.2498		
	Americium-241	pCi/L	0.0184 U	0.01019 U		
	Neptunium-237	pCi/L	-0.008 U	0.01632 U		
	Plutonium-238	pCi/L	0.0244 U	0.01627 U		
	Plutonium-239/240	pCi/L	0.0081 U	0.00814 U		
	Technetium-99	pCi/L	-0.619 U	-0.577 U	1 U	3.64
	Uranium	µg/L	4.064	3.461		
	Uranium-233/234	pCi/L	1.59	1.672		
	Uranium-235	pCi/L	0.0308 U	0.05006		
	Uranium-236	pCi/L	0.0092 U	0.02697 U		
UND-SW01	Uranium-238	pCi/L	1.363	1.158		
	Americium-241	pCi/L	0.0098 U	0.00838 U		
	Neptunium-237	pCi/L	0.009 U	-0.0078 U		
	Plutonium-238	pCi/L	0.009 U	0.03113 U		
	Plutonium-239/240	pCi/L	-0.009 U	0 U		
	Technetium-99	pCi/L	-2.09 U	6.88 U	0.0133 U	2.63
	Uranium	µg/L	1.974	0.8936		
	Uranium-233/234	pCi/L	0.7726	0.4089		
	Uranium-235	pCi/L	0.0112 U	9.5E-06 U		
	Uranium-236	pCi/L	0.0201 U	0 U		
UND-SW02	Uranium-238	pCi/L	0.6622	0.3003		
	Americium-241	pCi/L	0.0216 U	0 U		
	Neptunium-237	pCi/L	0 U	-0.0085 U		
	Plutonium-238	pCi/L	0.0265 U	0 U		
	Plutonium-239/240	pCi/L	9E-06 U	-0.0085 U		

**Table 4.22. Results for radionuclides at surface water monitoring locations (continued)**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
UND-SW02	Technetium-99	pCi/L	-2.54 U	7.08 U	0.4 U	-0.4 U
	Uranium	µg/L	1.45	1.141		
	Uranium-233/234	pCi/L	0.5558	0.3591		
	Uranium-235	pCi/L	0.0214 U	0.01926 U		
	Uranium-236	pCi/L	0.0096 U	0 U		
	Uranium-238	pCi/L	0.4853	0.3817		
WDD-SW01	Americium-241	pCi/L	0.0120 U	8.9E-06 U		
	Neptunium-237	pCi/L	0.0186 U	6.8E-06 U		
	Plutonium-238	pCi/L	-0.019 U	0.01362 U		
	Plutonium-239/240	pCi/L	0.0093 U	-0.0136 U		
	Technetium-99	pCi/L	-3.63 U	-0.196 U	1.89 U	1.53 J
	Uranium	µg/L	2.252	2.281		
	Uranium-233/234	pCi/L	1.103	0.9701		
	Uranium-235	pCi/L	0.0801	0.06411		
	Uranium-236	pCi/L	0.0205 U	9.6E-06 U		
	Uranium-238	pCi/L	0.7493	0.7607		
WDD-SW02	Americium-241	pCi/L	0.0101 U	0.04623 U		
	Neptunium-237	pCi/L	-0.019 U	0.00821 U		
	Plutonium-238	pCi/L	0.0094 U	0.00818 U		
	Plutonium-239/240	pCi/L	0.0469 U	0 U		
	Technetium-99	pCi/L	-6.77 U	-0.676 U	1.5 U	2.03
	Uranium	µg/L	2.366	1.943		
	Uranium-233/234	pCi/L	1.407	0.8376		
	Uranium-235	pCi/L	0.0303 U	-0.0094 U		
	Uranium-236	pCi/L	0.0091 U	0.00843 U		
	Uranium-238	pCi/L	0.7921	0.6536		
WDD-SW03	Americium-241	pCi/L	0.0112 U	-0.0085 U		
	Neptunium-237	pCi/L	0.0173 U	0.00773 U		
	Plutonium-238	pCi/L	-0.017 U	0.03082 U		
	Plutonium-239/240	pCi/L	0.0172 U	0.00771 U		
	Technetium-99	pCi/L	-5.09 U	2.18 U	0.44 U	1.36 J
	Uranium	µg/L	4.212	1.967		
	Uranium-233/234	pCi/L	2.614	1.002		
	Uranium-235	pCi/L	0.0736	0.09424		
	Uranium-236	pCi/L	0.0110 U	0.02821 U		
	Uranium-238	pCi/L	1.409	0.6523		

**Table 4.23. Results for radionuclides at exit pathway monitoring locations**

Sampling Location	Parameter	Unit	First quarter	Second quarter	Third quarter	Fourth quarter
F-29B	Americium-241	pCi/L		-0.0091 U		
	Neptunium-237	pCi/L		0.01754 U		
	Plutonium-238	pCi/L		0.04372		
	Plutonium-239/240	pCi/L		8.7E-06 U		
	Technetium-99	pCi/L		1.61 U		
	Uranium	µg/L		0.02734 U		
	Uranium-233/234	pCi/L		-0.0082 U		
	Uranium-235	pCi/L		0.01017 U		
	Uranium-236	pCi/L		0.00912 U		
	Uranium-238	pCi/L		0.00823 U		
X749-62B	Americium-241	pCi/L		0.02159 U		
	Neptunium-237	pCi/L		-0.0191 U		
	Plutonium-238	pCi/L		0.00955 U		
	Plutonium-239/240	pCi/L		-0.0286 U		
	Technetium-99	pCi/L		5.09 U		
	Uranium	µg/L		0.1189 U		
	Uranium-233/234	pCi/L		0.06987 U		
	Uranium-235	pCi/L		0 U		
	Uranium-236	pCi/L		0.0221 U		
	Uranium-238	pCi/L		0.03983 U		

Note: A table is not provided for volatile organic compounds at exit pathway monitoring locations because none were detected in wells F-29B and X749-62B. Results for the following additional exit pathway monitoring locations can be found in the following tables:

- BRC-SW02, LBC-SW04, UND-SW02, and WDD-SW03: see Tables 4.20 and 4.21
- X701-48G: see Tables 4.7 and 4.8
- X749-14B, X749-44G, X749-45G, X749-64B, X749-68G, X749-96G, X749-97G, X749-98G, X749-99M, X749-100M, and X749-101M: see Tables 4.1 and 4.2

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